FIFTEENTH ANNUAL REPORT

OF THE

Sanitary Commissioner for the Government of Bombay,

1877,

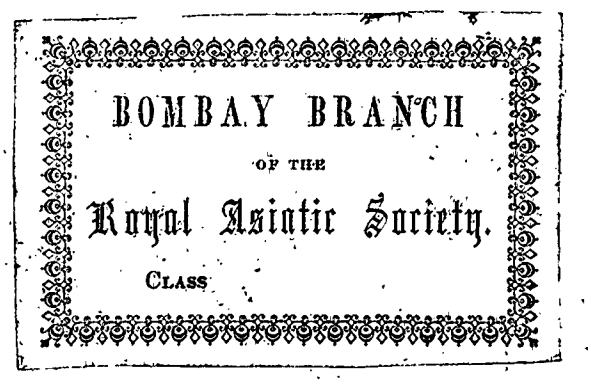
WITH

APPENDICES.

00133382

Bombay:
PRINTED AT THE GOVERNMENT CENTRAL PRESS

1878



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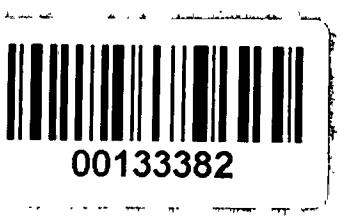

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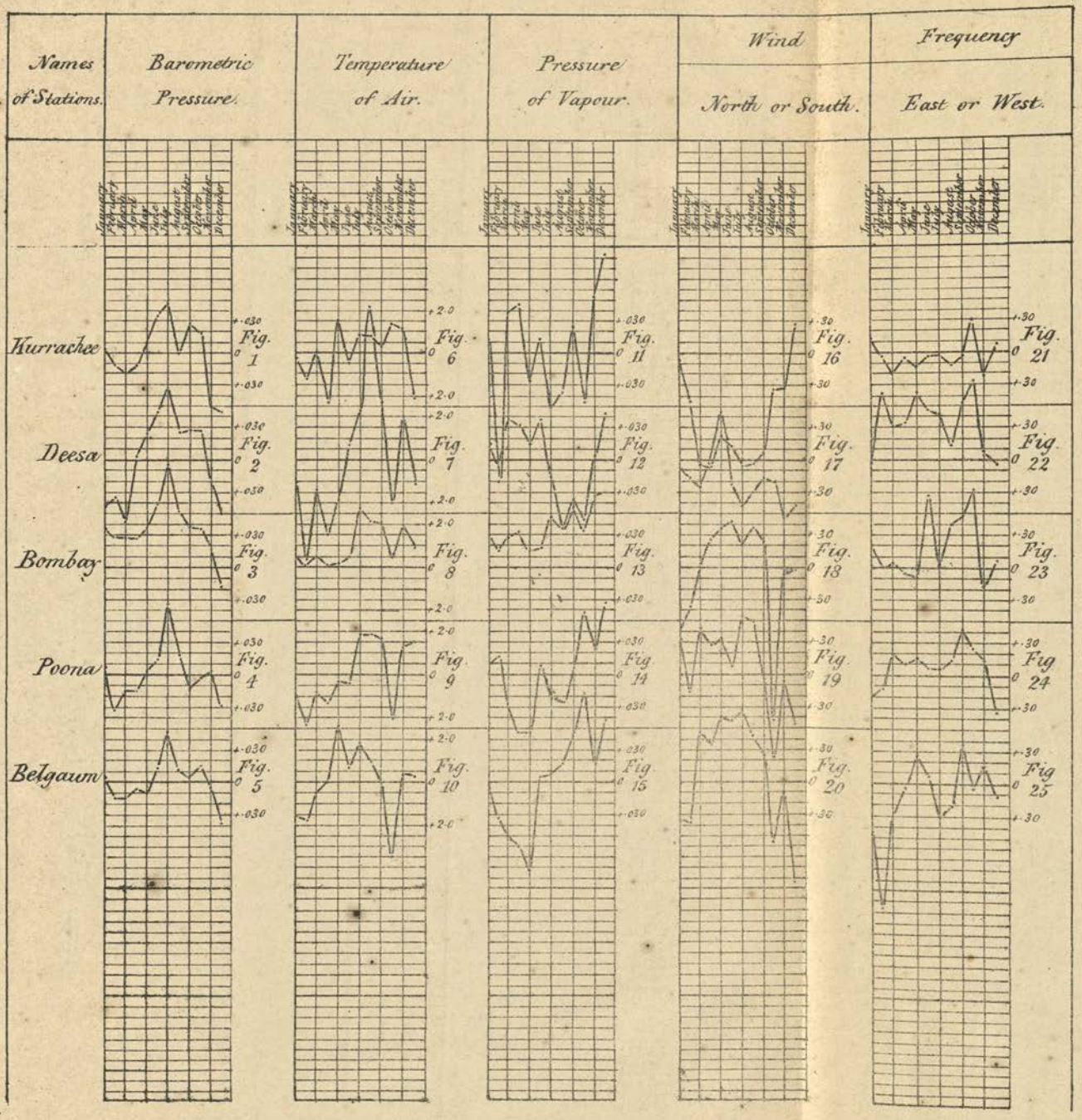
Abnormals of Meteorological Elements in 1877.



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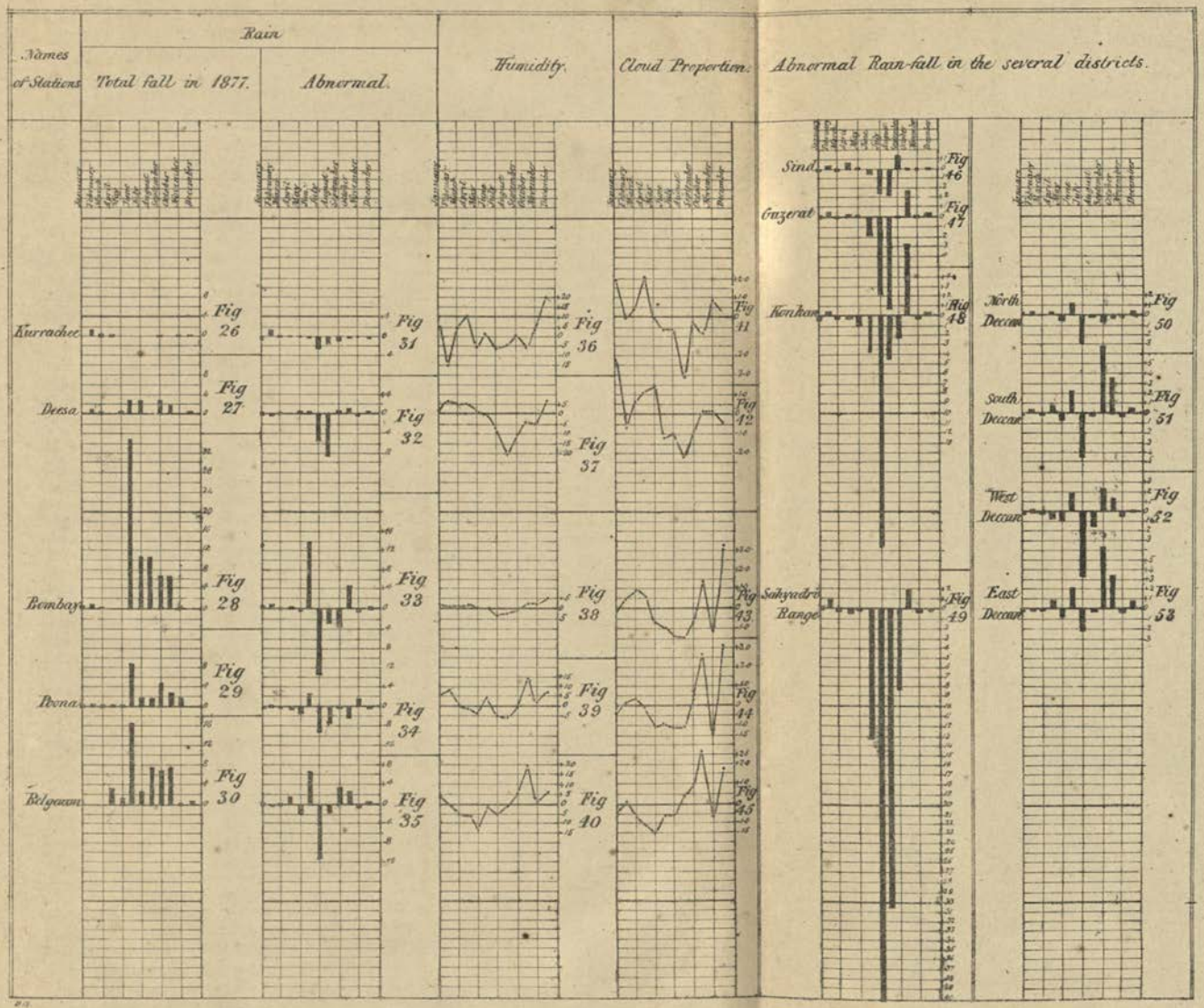
Abnormals of Meteorological Elements in 1877.



SECTION I.

METEOROLOGY.

The following "Brief Sketch of the Meteorology of the Bombay Presidency in 1877" is by Mr. F. Chambers, the Meteorological Reporter.

"The meteorology of the year 1877, like that of the previous year, has been particularly marked by the unseasonable distribution of the rain-fall. In the early months of the summer monsoon season, much anxiety was felt, lest a prolongation of the famine, induced by the deficiency of the water-supply of the previous year, should ensue, but happily these grave anticipations were not realised to any great extent. From a scientific as well as from a practical point of view these unusual variations of the weather are of special interest, in that they tend to establish a connection between the secular variations of the state of the solar and terrestrial atmospheres.

"*Tables.*—The appended tables give for each of the five stations, Kurrachee, Deesa, Bombay, Poona and Belgaum, as in the previous year, the mean monthly values of barometric pressure, temperature of air, pressure of vapour, and wind frequency, as well as the total monthly rain-fall. The tables also exhibit, except for Bombay, the mean monthly deviations of barometric pressure, temperature and vapour pressure from their average values for the year, and the extent to which these deviations were of an unusual character. For Bombay the actual deviations of these elements, from their average values for a long series of years, are given, and in the cases of wind frequency and rainfall similar information is given for the four out-stations.

"*Diagrams.*—Figures 1 to 25 and 31 to 35 exhibit all these unusual deviations from the normal conditions of the season, in a graphical form. In the case of the rain-fall the actual fall of each month is also graphically exhibited by figures 26 to 30.

Abnormal Variations.

"*Barometric pressure.*—The abnormal variations of barometric pressure at the several stations are shown by figures 1 to 5. As in the year 1876, the curves, on the whole, closely resemble each other, although their general character is very different from that of the abnormal curves of the previous year. The most striking feature is that at Bombay, in every month of the year, except December, the barometric pressure was higher than the average, and in July excessively high; indeed there is no case on record in which the barometric pressure was so abnormally high for the whole of a month as it was in July 1877. The same cannot be said with absolute certainty with regard to the other stations, but the comparison given below of the mean pressures of 1877 with those of 1876, when the mean pressure at Bombay was only .008 of an inch above the average of a long series of years, shows sufficiently, that during the greater part of the year, the barometric pressure was exceedingly high throughout the Presidency. That this was more especially the case in July is seen by a glance at the abnormal curves and the comparison (also given below) of the pressures in July 1877 with those for the same month in 1876, when the pressures in Western India were probably, as at Bombay, not far removed from the average pressure of this month. The bearing of this fact on the rain-fall will be seen hereafter :—

A.

Stations.	Year 1876.	Year 1877.	Excess of year 1877 above 1876.	July 1876.	July 1877.	Excess of July 1877 above July 1876.
Kurrachee	29·431	29·548	+ ·117	29·772	29·808	+ ·036
Mount Abu	25·763	25·861	+ ·098	.....	.....	.....
Deesa	29·048	29·210	+ ·162*	29·327	29·395	+ 068*
Bombay	29·631	29·746	+ ·115	29·815	29·845	+ ·030
Poona	27·671	27·765	+ ·084	27·834	27·847	+ ·013
Belgaum	27·228	27·319	+ ·091	27·349	27·369	+ ·020

"The most marked deviation of the abnormal curves from general similarity is shown in the month of September, when a slight rise occurred at Kurrachee along with a fall at Bombay, Poona and Belgaum, and neither rise nor fall at the intermediate station Deesa. It is probable that these movements also, were definitely connected with the rain-fall.

"*Temperature.*—The temperature of the air appears to have been decidedly above average at most of the stations for the greater part of the year, particularly during the monsoon months, June to September. The abnormal curves, figures 6 to 10, are very irregular, and seem to bear no direct relation to the barometric abnormal curves, although similar move-

* The sudden rise from March to April in the Deesa curve, as well as the high values of the excesses at Deesa, here given, are probably due to some undiscovered instrumental defect which produced a sudden increase in the readings of the Deesa barometer in the month of April 1877.

ments are often traceable at different stations notably in July when all the curves show a temperature above average, and in October when all the curves, except that for Kurrachee, show a sudden fall. The cause of these movements will be mentioned below, as also that of the very exceptionally high temperature at Deesa in the month of August, when the thermometer stood, on the average of the month, more than 7° higher than usual.

"*Vapour.*—The abnormal curves of vapour pressure, figures 11 to 15, are, like those of the previous year, very different in form at the northern and southern stations, but there is much of the same significant *opposition* of character about them as appeared in 1876. For instance, while the hot weather months March and April were unusually *damp* at the two northern stations, they were unusually *dry* at the two southern stations; and again in October, while the curves for Kurrachee and Deesa both exhibit low values of vapour pressure, those for Poona and Belgaum show high values of this element. The above conditions are almost exactly the reverse of those which obtained in the hot months and in October of the previous year. These facts may be generalized by the statement that in 1876 and 1877, unusually dry weather before the summer monsoon was followed by unusually damp weather after it or *vice versa*. It would, of course, be unsafe to accept this generalization as a guide for the future, founded, as it is, on the evidence afforded by the observations of two years only. At present it must be regarded as requiring further confirmation.

"*Wind frequency.*—The abnormal variations of the wind frequency are represented by figures 16 to 25. Figures 16 and 20, showing the excess of north or south winds at Kurrachee and Belgaum respectively, are, on the whole, very similar to the corresponding curves of the previous year, but even more decided in character, the curve for Kurrachee showing a very great excess of south winds, especially during the summer, and that for Belgaum a great excess of north winds in the summer half-year, and of south winds in the winter half-year. If these curves could be accepted as representing the abnormal *movements* of the air during the year, with the same confidence that figures 18 and 23 can be accepted as indicating the abnormal wind movements at Bombay, they would suffice to characterize the winds of the past year as very specially abnormal, agreeing in this respect, as in the previous year, with the abnormality of the rain-fall; but, as explained in the sketch for 1876, they can only be accepted as rough indications of the motion of the air. Still, the curves for Poona and Bombay, figures 18 and 19, support in a marked manner the evidence afforded by the curve for Belgaum, and the curve for Deesa, figure 17, is confirmatory of that for Kurrachee, by the fact, that being for an intermediate station it is intermediate in character between those for Kurrachee and Bombay. The figures 21 to 25, which show for each station the abnormal variations of the east and west winds, are less systematic in form; that for Kurrachee, figure 21, departs little from the Zen line, thereby showing that the east and west winds at this station, were, on the whole, of normal frequency. The curve for Deesa, however, figure 22, shows, almost throughout the year, a great excess of east, or defect of west winds. From figure 23, for Bombay, we see that in all the monsoon months except July, the east component of the wind was in excess, while figure 24, for Poona, shows continuously a slight excess of easterly winds or defect of westerly winds from March to November, and the reverse condition in the remaining three months of the year. Figure 25, for Belgaum, shows irregular oscillations about the normal line, the most marked departure therefrom ocurring in February when west winds were much more frequent than usual.

"There is one marked peculiarity about most of the figures, 16 to 25, which has not yet been noticed, viz., the sudden dislocations in the month of October shown more especially in figures, 18, 19 and 20, and 21, 22 and 23. These are due to a very decided cyclone which on the 5th, 6th and 7th of October, passed at some distance from Bombay, along the gulf of Cambay through Guzerat, and broke up in Central India. The maximum velocity of the wind at Bombay was 43 miles per hour from S.S.E., at 1 p. m. on the 6th October. While it lasted, this cyclone caused much anxiety to the Marine authorities in Bombay, who feared another visitation like that of November 1854, when many of the ships in the harbour were blown ashore.

"*Rain.*—In order to obtain a more general view of the rain-fall of the Presidency than could be obtained from the registers of the five stations, Kurrachee, Deesa, Bombay, Poona and Belgaum, the rainrecords of the following stations have been selected and grouped, as shown below :—

B.

Sind.	Guzerat.	Konkan.	Sahyádri Range.
Kurrachee.	Surat.	Karwar.	Matherán.
Sehwán.	Broach.	Honáwar.	Mahableshwar.
Tata.	Deesa.	Vingorla.	Igatpuri.
Hyderabad.	Kaira.	Ratnágiri.	
Umarkot.	Godhra.	Colába Observatory.	
Nagar.	Ahmedabad.	Tanna.	
Shikárpur	Bária.		
Rohri.	Edar.		
Jacobabad.	Pálanpur.		
	Rájkot.		

B—*continued.*

North Deccan.	South Deccan.	West Deccan.	East Deccan.
Dhulia.	Satara.	Násik.	Ahmednagar.
Nàsik.	Sholápur.	Málegaon.	Sholapur.
Málegaon.	Kolhapur.	Poona.	Gokak.
Ahmednagar.	Belgaum.	Satara.	Hubli.
Poona.	Gokak.	Kolhapur.	Nargund.
	Hubli.	Belgaum.	Kalghatgi.
	Nargund.		Bijapur.
	Kalghatgi.		
	Bijápur.		

"The rain registers of these stations are, as will presently be seen, sufficient to show with tolerable accuracy, the salient features of the rain-fall distribution of the Presidency.

"The average monthly and annual rain-fall for each of these groups of stations in the year 1877, is given in the following table:—

C.

Districts.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year 1877.
Sind	0·20	0·48	0·21	0·64	0·17	0·11	0·21	0·00	2·09	0·14	0·11	0·18	4·54
Guzerat	0·10	0·60	0·00	0·06	0·42	2·75	3·44	0·78	5·38	3·43	0·10	0·39	17·45
Konkan	0·04	0·33	0·02	0·01	0·25	27·91	12·14	16·09	9·57	10·09	0·25	0·22	76·92
Sahyádri Range ...	0·06	0·94	0·04	0·00	0·75	25·09	42·94	29·28	18·42	6·50	0·13	0·00	124·15
North Deccan ...	0·47	0·27	0·10	0·43	0·29	6·41	1·82	4·15	3·72	2·58	0·46	0·44	21·14
South Deccan ...	0·00	0·14	0·10	1·49	0·90	7·69	2·08	4·50	10·15	8·00	0·05	1·26	36·36
West Deccan ...	0·11	0·31	0·05	0·24	0·45	8·86	2·70	4·57	6·37	5·12	0·39	0·31	28·32
East Deccan ..	0·00	0·02	0·16	1·58	0·98	6·38	1·28	3·38	9·96	7·52	0·06	1·55	32·87

D.

"The next table shows the average rain-fall for a number of past years in each of these districts.

Districts.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
Sind	0·37	0·23	0·27	0·10	0·14	0·60	2·78	2·82	0·72	0·12	0·12	0·15	8·42
Guzerat	0·02	0·21	0·03	0·02	0·38	4·55	11·32	10·14	5·46	0·56	0·15	0·05	32·89
Konkan	0·56	0·00	0·08	0·21	1·23	31·77	35·72	20·64	11·77	2·90	0·62	0·09	105·59
Sahyadri Range ...	0·28	0·01	0·23	0·46	0·78	38·23	83·09	59·83	26·75	4·59	0·50	0·13	214·88
North Deccan ...	0·42	0·05	0·10	0·34	0·76	5·18	4·72	4·29	4·38	2·92	0·66	0·24	24·06
South Deccan ...	0·15	0·02	0·26	1·00	1·71	5·52	6·68	4·88	3·35	4·24	0·59	0·75	29·15
West Deccan ...	0·25	0·03	0·15	0·91	1·36	6·94	9·43	6·15	3·86	3·74	0·84	0·30	33·96
East Deccan ..	0·20	0·03	0·28	0·75	1·56	4·27	3·39	3·57	3·71	4·11	0·44	0·86	23·17

"From the above tables the following comparison is drawn between the rain-fall of each district in 1877 and the average rain-fall for a number of years.

E.

Districts.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Years.
Sind	—0·17	+0.25	—0·06	+0·54	+0·03	— 0·49	— 2·57	— 2·82	+1·37	+0·02	—0·01	+0·03	—3·88
Guzerat... ...	+0·08	+0·39	—0·03	+0·04	+0·04	— 1·80	— 7·88	— 9·36	—0.08	+2·77	—0·05	+0·34	—15·44
Konkan... ...	—0·52	+0·33	—0·06	—0·20	—0·98	— 3·86	—23·58	— 4·55	—2·20	+7·19	—0·37	+0·13	—28·67
Sahyádri Range.	—0·22	+0·83	—0·19	—0·46	—0·03	—13·14	—40·15	—30·55	—8·33	+1·91	—0·37	—0·13	—90·73
North Deccan ..	+0·05	+0·22	—0·00	+0·09	—0·47	+ 1·23	— 2·90	— 0·14	—0·56	—0·34	—0·20	+0·20	—2·92
South Deccan ...	—0·15	+0·12	—0·16	+0·49	—0·61	+ 2·17	— 4·60	— 0·38	+6·80	+3·76	—0·54	+0·51	+ 7·21
West Deccan ...	—0·14	+0·28	—0·10	—0·67	—0·91	+ 1·92	— 6·73	— 1·58	+2·51	+1·38	—0·45	+0·01	—5·64
East Deccan ...	—0·20	—0·01	—0·12	+0·83	—0·58	+ 2·11	— 2·11	— 0·19	+6·25	+3·41	—0·38	+0·69	+9·70

"The numbers of the above table are represented in figures 46 to 53 by vertical black lines drawn to the scales marked at the margin of each figure, the lines being drawn upward to indicate an excess of rain-fall in 1877, as compared with the average fall, downward to show a defect.

"From November to May the rain-fall throughout the Presidency was, as usual, insignificant. In Sind, Guzerat, the Konkan, and along the Sahyádri Range, the rain-fall throughout the monsoon months, June to September, was deficient, particularly in July, which is usually the wettest month. In Guzerat and Sind there was practically no rain throughout

the whole of the month of August. In the Deccan an excess of rain fell in June, but the fall in July and August was generally below average, especially in July. In September and October, however, more than twice the usual quantity fell in the southern collectorate, and about an average supply in the Northern Division. October was also unusually wet in Guzerat, the Konkan, and the Sahyádri Range, a fact which is traceable to the influence of the cyclone already mentioned.

Physical relations of the Meteorological Phenomena.

"In the sketch for 1876, it was pointed out that all meteorological action depends primarily upon variations of the temperature of the atmosphere, but that owing to the temperature variations observed at any particular place being themselves so much influenced by wind and rain-fall, particularly the latter, the relation of cause and effect which exists between the temperature and other meteorological variations can generally be traced, only when the phenomena are viewed on a grand scale. It is possible, however, to detect the effects of the abnormal variations of temperature, in the dry months of the year 1877, upon the corresponding variations of pressure, but the abnormal temperature variations during the summer monsoon months, are evidently mainly attributable to the abnormal variations of the rain-fall.

"The first effect of a general *increase* of the temperature of the air over a considerable portion of the earth's surface, is an expansion of the atmosphere, accompanied by a corresponding *decrease* of the barometric pressure. This fact is most strikingly exemplified by the reverse character of the great annual fluctuations of temperature and pressure in Central Asia, where the temperature variation is unaffected by the cooling influence of the summer monsoon rains. The similar reverse relation which characterizes the abnormal variations of temperature and pressure of the dry months of the year 1877, will be clearly seen from the following table, which shows that the abnormal *rise* of temperature, from the early to the late dry months of the year, was accompanied by a corresponding abnormal *fall* of pressure, and it is worthy of mention that the inland stations show, as might be expected, the greatest rise of abnormal temperature, and that the numbers which indicate the corresponding barometric fall are greatest at the northern, and least at the southern stations, in accordance with the law of the annual variation of pressure, thereby indicating that these abnormalities were merely variations in the intensity of the usual seasonal movements, the late months of the year being less wintry than the early months.

F.

Stations.	Barometric Abnormals.		Abnormal Change.	Temperature Abnormals.		Abnormal Change.
	Means of			Means of		
	January, February March and April.	November and December.		January, February, March and April.	November and December.	
Kurrachee...	— ·010	— ·053	— ·043	— 1·0	— 0·5	+ 0·5
Deesa	+ ·001*	— ·035	— ·036	— 2·3	+ 0·3	+ 2·6
Bombay	+ ·030	·000	— ·030	+ 0·3	+ 1·4	+ 1·1
Poona	— ·014	— ·012	+ ·002	— 1·3	+ 0·4	+ 2·7
Belgaum	— ·009	— ·022	— ·013	— 1·0	+ 0·3	+ 1·3
Mean change	...	...	— ·024	...	..	+ 1·6.

* For April only.

"On the other hand, it is impossible to trace any similar relations between the abnormal temperature and pressure variation of the wet months of the year, the reason being that the abnormal variations of temperature, which must have occurred to produce the abnormal pressure variations, are completely overridden by the temperature abnormalities due to abnormal rain-fall, the temperature rising when the rain-fall was in defect, falling when it was in excess. Thus in July and August when the rain-fall at all the stations was very deficient, the temperature in all cases was unusually high, more especially at Deesa in August, when the temperature was enormously above average, coincidently with the total absence of the usual rain. Again in October with an excess of rain at all the stations except Kurrachee, a general depression of temperature is shown at the stations.

"The cause of the high abnormal pressure which characterized the summer monsoon months at all the stations, and to such an unprecedented extent in July, must therefore be sought in the temperature variations of stations that are less influenced by the abnormalities of the monsoon rains, and for the present we must be content with the fact that the pressure was throughout the summer very much higher than usual, and proceed to trace its effects on the other abnormal phenomena; but, before doing so, we will examine the barometric abnormalities a little more closely, as will be seen from the comparison given in table (**A**) page 1; the mean pressure in the year 1877 was greater at all the stations than in 1876, the excess being greatest at the northern stations; nevertheless, the excess (+ ·036) at Kurrachee, the most northerly station, is not twice as great as that (+ 0·20) at Belgaum, the station furthest south, while, as was shown in the sketch for 1876, the great annual fluctation (·559) of the barometer at Kurrachee, is very nearly three times as great as that (·189) at Belgaum.

"The excesses of pressure in July 1877 over those of July 1876, also shown in the same table, exhibit the same peculiarity in a still more marked manner. Those for the northern stations are indeed somewhat greater than those for the southern stations, but (omitting that for Deesa which is doubtful), only to a very slight extent. These excesses cannot therefore be explained, like the abnormal barometric fluctuations of the year 1876, as being almost wholly due to simple variations in the intensity of the usual seasonal barometric movements in Central Asia, for the excesses at different stations do not, like the abnormal movements of the previous year, bear to each other nearly the same proportion as that which holds between the respective annual fluctations. With respect to the abnormal barometric movements of 1876, but particularly with regard to those of September and October of that year, when the difficiency of rain occurred which produced the Famine, it was pointed out that though chiefly variations of the usual seasonal movements, 'they probably exerted an influence over a considerably *wider* area than that which constitutes the field of operation of the great annual fluctuation.' The approach to uniformity in the magnitude of the barometric abnormals at different stations in the year 1877, more especially in July, compels us to look somewhat beyond the Indian monsoon region proper, for their complete explanation, and this explanation is probably to be found in the varying movement and developement of the equatorial belt of minimum barometric pressure, combined with the varying development of the Central Asia miminum. In the Indian Ocean and in the northern winter, the equatorial belt of minimum pressure moves as far as 9° south of the equator, and in the northern summer it moves so far north as to become merged with the area of minimum pressure which forms in Central Asia, and it then disappears as a prominent feature of the pressure distribution. Our present knowledge of the meteorology of the Indian Ocean is too scanty to enable us to lay down definitely the modifying influences which the movement of the equatorial belt exerts on the meteorology of India proper, but this influence is probably very great. Indeed it appears to be the northerly movement of this belt which brings the South-West monsoon rains, first to Ceylon and afterwards successively to places along the western coast of India further and further northward. Judging from the Bombay meteorological observations, it would appear that the middle of this belt usually passes Bombay, going northward about the middle of June, and repasses, on its return, southward, about the middle of July, and that it is therefore probably in the immediate neighbourhood of Bombay during the month of July. Now, if we could imagine that this barometric minimum belt, as well as the Central Asia minimum were less completely developed than usual in the month of July 1877, by reason of diminished solar radiation, we should have a tolerably complete explanation of the barometric abnormalities of the month of July. In confirmation of this view, it may be noticed, that in this particular month the largest abnormal changes are shown by the stations, Bombay and Poona, *i. e.*, by those stations nearest to the probable position of the middle of the minimum belt of pressure. Thus it seems probable that the same hypothesis which served to explain the barometric abnormal movements of 1876, *i. e.*, secular variations of the sun's heat, will, by taking a broader view, serve to explain those of 1877 also."

"The relation between the abnormal wind movements and those of pressure is of a very complex character, and from the variety of form presented by the wind abnormal curves, it is evident that the abnormal winds due to purely local causes are almost inextricably mixed up with the abnormal portions of the more general wind movements. A better knowledge of the meteorology of the Indian Ocean and more particularly of the Arabian Sea, than we now possess, is probably needed to throw light upon many of the very peculiar abnormal variations of the wind, represented by figures 16 to 25. Those portions of them which are not of purely local origin may be, and probably are, connected with the varying development and position of the equatorial minimum belt of pressure, and upon the variation of atmospheric pressure in Central Asia. The natural effect of the high abnormal pressure in the summer months would be to weaken the summer monsoon wind currents, and we see from figures 18 and 23, that at Bombay, except in July (when the local sea-breeze partially re-appeared, in consequence of the scanty rainfall) such was the case. Similar evidence is also afforded by figure 22, from which it may be inferred that at Deesa, except in August (when the local wind from the seaward was unusually strong on account of the absence of the usual rain) the westerly monsoon wind was persistently much weaker than usual. Allowing then, for the effects of the purely local and limited circulations of the atmosphere, it is pretty certain, that the great monsoon current from the Arabian Sea was, throughout the summer months, unusually weak. This in itself would afford one reason for the small summer rainfall, for the quantity of moisture brought from the sea by the monsoon current, would, other things being equal, vary directly as the velocity of the current. But if the diminished strength of the current was due to diminished solar radiation, as may be inferred from the high abnormal barometric pressure, it is also not unlikely that the monsoon current was, from the same cause, less humid than usual, for diminished solar radiation over the ocean would produce less evaporation and cosequently less cloud and rainfall. To test these questions, Tables VII and VIII, giving the normal and abnormal values of the relative humidity of the air, and of the cloudiness, have been prepared and the abnormal values of these elements have been curved in figures 36 to 45. It will be seen from figures 36 to 40 that the relative humidity of the air at all the stations was *below* the average in the months of July and August. Figures 41 to 45, showing the abnormal cloudiness at each station, support each other so remarkably that, although derived without

any instrumental aid from mere estimations of the proportion of sky covered with cloud, they may be accepted with much confidence as representing real phenomena. They show very conclusively, that, with but one or two exceptions, the sky was decidedly less cloudy than usual at all the stations throughout the monsoon months, June to September, and thus they confirm the evidence afforded by figures 36 to 40 and prove that the relative humidity of both the upper and lower strata of the atmosphere was in most of the monsoon months decidedly lower than usual."

"Thus it appears that the summer monsoon current was not only *weaker* than usual, but that it was, on the whole, also *less humid*. The bearing of these facts on the rainfall is very evident. Indeed, if these or similar conditions be given, it is quite possible even with our present knowledge, to infer, in a general way, the rainfall distribution depending on them."

"The most convenient numerical form in which to study the rain-fall for practical purposes appears to be that of percentages of the average fall. When put into this form, the variations of the rainfall may be taken as a comparative measure of their effects on the crops in different districts—an advantage which cannot be claimed for the numbers representing the absolute variations; for, in a district where the average absolute fall is great, a variation of a few inches, more or less, is of little consequence; whereas a variation of the same absolute amount in districts where the fall is usually scanty, might determine the success or failure of agricultural operations. The rainfall of the monsoon months, June to October, and the total for the year for each district, is given in the percentage form in the following table:—

"Rainfall of 1877 in percentages of the average fall.

G.

Districts.	June.	July.	August.	September.	October.	Year.
Sind	18	8	0	290	117	54
Guzerat	60	30	8	99	612	53
Konkan	88	34	78	81	348	73
Sahyádrí Range	66	52	49	69	142	58
West Deccan	128	29	74	165	137	83
East Deccan	149	38	95	268	183	142
North Deccan	124	39	97	85	88	88
South Deccan	139	31	92	303	189	125

"From this table it is seen that the total rainfall for the year was below the average in the northern and the western portions of the Deccan, in the Konkan, along the Sahyádri Range, and in Sind and Guzerat, and above average in the southern and eastern portions of the Deccan; the greatest deficiency occurred in Guzerat and Sind, where it amounted to 46 and 47 per cent. respectively. In Sind, where agricultural operations depend, not on the rainfall, which is at all times very scanty, but upon irrigation from the river Indus, the deficiency was of little consequence, but in Guzerat it was severely felt."

"A glance at the monthly percentages shows that the rainfall distribution throughout the monsoon season was very various, and the percentages for different districts do not exhibit any uniform arithmetical relation to each other in the different months. Hence it is probable, from this fact alone, that they are due to the action of a variety of causes, and if so, the yearly percentages merely represent the arithmetic result of the combined action of these various causes, and it is therefore not surprising that no uniform numerical relation can be traced amongst them. It is otherwise however, when we compare together the percentages of individual months, and those of districts where the normal rainfall is similarly distributed throughout the monsoon season."

"The distribution of the normal annual rainfall throughout the different months in each district is given in the following table. It shows what percentage of the annual fall is received in each month of the year :—"

"Normal percentage distribution of rainfall in the different months of the year 1877."

H.

Districts.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Sind	4	3	3	1	2	7	33	33	9	1	1	2
Guzerat	...	1	0	0	1	14	34	31	17	2	0	0
Konkán	1	0	0	0	1	30	34	20	11	3	1	0
Sahyádri Range	...	0	0	0	0	18	39	28	12	2	0	0
West Deccan	1	0	0	3	4	20	28	18	11	11	2	1
East Deccan	1	0	1	3	7	18	15	15	16	18	2	4
North Deccan	2	0	0	1	3	22	20	18	18	12	3	1
South Deccan	1	0	1	3	6	19	23	17	11	15	2	3

"In the Konkan, along the Sahyádri Range, in Guzerat and in Sind, the distribution in the monsoon months, July to October, is seen to be generally of the same character, the percentages in each case being greatest in July and gradually diminishing to only 2 per cent. of the annual fall, in October. In June the numbers vary considerably in consequence of the monsoon rains, arriving in the southern districts earlier than in the northern. In the Deccan, the general distribution is much more uniform throughout the months, June to October, and even in May a small quantity is usually received. In the western districts of the Deccan, July is the wettest month, but the percentage is much lower than along the Sahyádri Range, and the fall of October is more than one-third that of July; whereas along the Sahyádri Range the October fall is only about one-twentieth of that of July. In the eastern districts of the Deccan, however, the fall is greatest in June and October, while that of July is actually the least of all the monsoon months, June to October."

"The principal causes of these variations of the rainfall distribution, as well as of the normal variation in the absolute quantity received in different districts, are already known."*

"They depend, 1st, on the strength and humidity of the monsoon currents; 2nd, on the physical contour of the country, and the direction of the wind. The conditions required for the production of rain are, 1st, that some portion of the superincumbent atmosphere should be *saturated* with moisture, and 2nd, that a sufficient *reduction of temperature* should occur to condense the moisture into cloud and rain. The first of these conditions is often realized without the production of rain, because the second condition is not fulfilled at the same time. Indeed it is a subject of common remark in the newspapers, especially with reference to the Deccan, that the sky is often covered with clouds which for days together seem to promise rain, but which nevertheless are borne along by the wind, and dissipated without the realization of the hopes and expectations that have been raised by them. The secret which explains these and many other similar phenomena is that which explains how the fall or rise of temperature, which must occur to produce or prevent condensation, is brought about. This is due chiefly to the vertical motion of the air. A body of air in rising from one level to another, expands, because the pressure of a portion of the superincumbent atmosphere has been removed conversely in falling to a lower level, it contracts for the opposite reason. This expansion produces a fall of temperature, the contraction a corresponding rise, and the dynamical theory of heat enables us to calculate how much the temperature of a body of air will decrease or increase in rising or falling a certain number of feet. So long therefore as the air continues to rise, its temperature is falling, and favouring condensation, but as soon as it begins to fall, it grows hotter, and the clouds begin to be re-dissolved. Very beautiful and natural ocular proofs of the truth of this statement are to be seen almost daily during the monsoon months on the numerous cloud-capped hills of the Sahyadri Range. In passing over these hills, the damp air rises at one side and falls at the other, and the consequence is, that a cloud is constantly being formed and re-dissolved at the top of the hill. It is this phenomenon that has probably led to the popular, but erroneous, opinion that mountains attract the clouds. That clouds often appear to remain fixed on hill tops, when the air which blows over the hills is near its point of saturation, is quite true, but a little close observation will be sufficient to convince any one that it is not the same cloud which endures, but that new cloud is perpetually being formed at one side and re-dissolved at the other."

"The comparatively heavy rain-fall in the Konkan and along the Sahyadri Range, the scanty fall in the Deccan and in Sind, and many other peculiarities of the rain-fall distribution all admit of explanation in the same manner. A full exposition of the subject, as it affects the Presidency, is given in Mr. Charles Chambers's work on the 'Meteorology of the Bombay Presidency.' The dependence of the rain-fall distribution of the past season (1877) on the same principles, is also very clear, and we may now return to the consideration of the percentages given in the table (G)."

"The most striking feature is the lowness of the percentages from June to August, everywhere except in the Deccan, and even in the Deccan also in the month of July. The chief reason for the scanty rain-fall of these months has already been given, viz., the weakness and relative dryness of the summer monsoon current, but it remains to explain why, except in July, the drought was not felt in the Deccan, and to give the reason for the heavy rain-fall of September and October in the Deccan."

"We have seen that, given a saturated atmosphere, rain depends chiefly on the upward movement of the air. Now this upward movement is produced in two ways: first by convection, *i. e.* vertical circulation of the atmosphere in a manner analogous to that by which a drought is caused in a chimney, the comparatively hot air rising, or rather, being pushed up by the cool air which takes its place; and secondly by a horizontal wind like the south-west monsoon current, meeting with an obstruction to its onward progress, like the barrier presented by the Sahyadri Range. In either case, the result is the same, upward motion of the air, condensation of its moisture, and the production of rain. So long, therefore, as the moist south-west monsoon wind continues to blow, it must rise to surmount the barrier formed by the Sahyadri Hills, but after passing this barrier, it begins at once to descend, following the decline of the ground surface eastward. There is, therefore, heavy rain in the Konkan and along the Sahyadri Range, but little probability of rain on the Deccan, so long as the westerly wind continues, but as this wind dies away, the probability of rain on the Deccan

* *Vide* Meteorology of the Bombay Presidency.

becomes greater with the increase in the effectiveness of the convectional atmospheric circulation, the upward movements thus produced being no longer opposed by the downward movements due to the strong westerly wind. Thus we find in June, when the monsoon current was weak, that the rain-fall on the Deccan was everywhere above the average, although it was deficient in other parts of the Presidency; or, in other words, that the same cause (the weak monsoon current) which produced a deficiency of rain everywhere except on the Deccan, produced, by favouring convection, an actual excess on the Deccan itself. In July, however, when the monsoon wind was sufficiently strong to counteract the influence of convection currents on the Deccan, that region also suffered from the deficiency. Arranging below the percentages of this month in the order of the absolute normal fall of each district, we find that there is a well-marked similarity of progression in the two sets of numbers:—

K.

		Sahyadri Range.	Konkan.	Guzerat.	West Deccan.	Sind.	East Deccan.
July...	Normal fall	83·09	35·72	11·32	9·43	2·78	3·39
	Percentage fall in 1877	52	34	30	29	8	38

"From these numbers it appears that when the rains, directly dependent on the south-west monsoon current, are deficient, the failure is most serious in those districts where the normal rain-fall, due to this particular current, is least, and that the failure does not affect in the same proportion those regions where the rain-fall is heavy. This is what might be expected from theoretical considerations, and the conclusion has an important bearing on any protective measures against the effects of famine, that may be in contemplation for the benefit of these districts; for it shows very clearly that those regions which are subject to the greatest percentage variation of their rainfall, are identical with those in which the rain-fall is normally scanty, and that, comparatively speaking, those in which the normal rainfall is heavy may be left to take care of themselves, since the percentage variations of rain-fall in those districts are comparatively small."

"The improvement in the percentage given above for the East Deccan, as compared with that for the West Deccan, affords evidence of the influence of the convection currents farther inland even in the month of July, when the monsoon current is strongest."

"Passing now to the percentages of August, when the monsoon current begins to slacken, we notice a very decided improvement of the percentages for the Deccan, as compared with those for other districts—an improvement which may be attributed to the increased effectiveness of the inland convection currents, on the partial cessation of the monsoon wind. The percentages of September show a still further improvement in the same direction, which is probably due to the same cause. Arranged in the order of the absolute normal fall of each district, these percentages are as follows:—

L.

		Sahyadri Range.	Konkan.	Guzerat.	West Deccan.	East Deccan.	Sind.
September...	Normal fall	26·75	11·77	5·46	3·86	3·71	0·72
	Percentage fall of 1877 ...	69	81	99	165	268	290

"From these it appears, that in September the dificiency due to the weakness of the monsoon current (as indicated by the smallness of the percentage for the Sahyadri Range), was nearly compensated in the Konkan and Guzerat, and converted into a great excess on the Deccan and in Sind by the influence of the local convection currents called into play by the great weakness of the monsoon wind, which at Bombay had a mean velocity of only about 5 miles per hour."

"In October the high percentages for Guzerat and the Konkan, are due, as before explained, to the cyclone which occurred in this month. In the northern division of the Deccan the percentage is slightly below average, but in the southern and eastern districts they are very greatly in excess. The normal rains of these districts in the month of October come, not from the Arabian Sea, but from the Bay of Bengal, and indeed form part of the phenomenon known in the Madras Presidency as the north-east monsoon. They doubtless are connected with the position of the equatorial belt of minimum barometric pressure, which in October appears to stretch across the Bay of Bengal, the Indian Peninsula and the Arabian Sea, somewhat northward of the parallel of latitude of Madras. The abnormal wind curves show, that in this month southerly and south-easterly winds were more prevalent than usual. Now just as a north-westerly wind in descending the slope of the Deccan diminishes the probability of rain, so a south-easterly wind in ascending that slope conversely increases the probability. If therefore (other conditions remaining the same) the south-easterly wind, is more prevalent than usual, the rain-fall will also be greater than usual, and the October percentages show that this was the case."

"We have now seen how the abnormal variations in the distribution of the rain-fall of the year 1877 were influenced by the abnormal variations of the strength and direction of the prevailing winds, and how these depend on the abnormal distribution of the barometric pressure."

"So far as we at present know, all abnormal variations of the barometric pressure, like those with which we have been dealing, must be due to corresponding abnormal variations of atmospheric temperature, and these in their turn to absolute variations of the sun's heat. The abnormal variations of rainfall thus become connected with the state of the sun's surface, but we have no right to assume that, that connection will be one of simple numerical proportion between the total annual rain-fall of every portion of the earth's surface, and the average annual spotted area of the sun's surface, even if the spotted area could be accepted as proportional to the absolute variations of solar heat; for, as we have seen, some of the conditions which favour the production of rain in some regions are identical with those which prevent it in others, and *vice versa*. Indeed, we cannot form a conjecture as to the nature of the connection between the sun spots and the rain-fall of any particular region, until the conditions which determine the normal rain-fall of that region have been elucidated. It is not surprising, therefore, that the attempts hitherto made to discover such a connection have produced conflicting results for some portions of the globe, but that there is a definite connection between the state of the solar surface and the variations of the rain-fall of different years, no one who has examined all the evidence which Mr. Meldrum and others have advanced, can doubt. One of the most interesting problems that now lies before the meteorologist is to determine the nature of this connection for each portion of the earth's surface, and the first step towards the solution of this problem is to determine the causes of the normal rain-fall of each district. These have already been worked out, to a great extent for the Bombay Presidency by Mr. Charles Chambers, and we have seen how the abnormal variations of the rain-fall of the past year admit of explanation by the same principles. They tend therefore to confirm the conclusion that, most of the unusual variations of weather in tropical climates are induced by corresponding variations in the absolute heating power of the sun, in the *same manner* that the seasonal variations are induced by those changes of heating power which depend on the relative *motions* of that body."

"The importance of this conclusion, if true, will be readily admitted, for it will be at once apparent, that if the absolute variations of the sun's heat are fitful in their occurrence, and do not obey definite periodical laws, it will perhaps never be possible to predict by more than a few days in advance the unseasonal variations of weather induced by them, while if such laws can only be discovered, the possibility of our being able to predict their consequences will become a certainty."

I.—Table showiag the Barometric Pressure at Belgaum, Poona, Deesa, and Kurrachee for each Month of the Year.

Months.	Belgaum.				Poona.				Deesa.				Kurrachi.			
	1877.	Variation.	Normal Variation.	Difference.	1877.	Variation.	Normal Variation.	Difference.	1877.	Variation.	Normal Variation.	Difference.	1877.	Variation.	Normal Variation.	Difference.
January ...	27·454	+·085	+·082	+·003	27·961	+·114	+·107	+·007	29·545	+·150	+·191	−·041	30·047	+·239	+·236	+·003
February ...	·421	+·052	+·067	−·015	·896	+·049	+·083	−·034	·504	+·109	+·146	−·037	29·988	+·180	+·191	−·011
March... ...	·384	+·015	+·031	−·016	·880	+·033	+·048	−·015	·416	+·021	+·080	−·059	·874	+·066	+·086	−·020
April	·350	−·019	−·011	−·008	·824	−·023	−·008	−·015	·372	−·023	−·024	+·001	·802	−·006	+·007	−·013
May	·311	−·058	−·048	−·010	·791	−·056	−·057	+·001	·306	−·089	−·115	+·026	·690	−·118	−·128	+·010
June	·279	−·090	−·102	+·012	·722	−·125	−·139	+·014	·208	−·187	−·231	+·044	·564	−·244	−·279	+·035
July	·319	−·050	−·098	+·048	·765	−·082	−·148	+·066	·210	−·185	−·253	+·068	·548	−·260	−·307	+·047
August ...	·319	−·050	−·061	+·011	·771	−·076	−·095	+·019	·251	−·144	−·168	+·024	·612	−·196	−·195	−·001
September ...	·346	−·023	−·027	+·004	·783	−·064	−·050	−·014	·349	−·046	+·073	+·027	·723	−·085	−·113	+·028
October ...	·397	+·028	+·013	+·015	·874	+·027	+·030	−·003	·480	+·085	+·059	+·026	·881	+·073	+·055	+·018
November ...	·430	+·061	+·066	−·005	·947	+·100	+·097	+·003	·550	+·155	+·175	−·020	·959	+·151	+·201	−·050
December ...	·421	+·052	+·091	−·039	·951	+·104	+·132	−·028	·553	+·158	+·208	−·050	30·004	+·196	+·252	−·056

II.—Table showing the Temperature of Air at Belgaum, Poona, Deesa, and Kurrachee for each Month of the Year.

Months.	Belgaum.				Poona.				Deesa.				Kurrachee.			
	1877.	Variation.	Normal Variation.	Difference.	1877.	Variation.	Normal Variation.	Difference.	1877.	Variation.	Normal Variation.	Difference.	1877.	Variation.	Normal Variation.	Difference.
January ...	70·5	−4·5	−2·9	−1·6	71·2	−6·4	−5·4	−1·0	64·9	−15·2	−14·2	−1·0	64·5	−13·0	−12·7	−0·3
February ...	73·6	−1·4	+0·4	−1·8	73·5	−4·1	−1·8	−2·3	66·6	−13·5	−8·9	−4·6	66·9	−10·6	−9·3	−1·3
March... ...	78·8	+3·3	+3·8	−0·5	80·2	+2·6	+3·4	−0·8	77·0	−3·1	−1·7	−1·4	75·2	−2·3	−2·3	0·0
April	81·3	+6·3	+6·4	−0·1	84·1	+6·5	+7·8	−1·3	85·5	+5·4	+8·9	−3·5	78·7	+1·2	+3·5	−2·3
May	82·3	+7·3	+4·7	+2·6	84·2	+6·6	+6·9	−0·3	90·9	+10·8	+12·7	−1·9	85·3	+8·3	+6·7	+1·6
June	76·1	+1·1	+0·4	+0·7	79·3	+1·7	+2·1	−0·4	92·0	+11·9	+11·2	+0·7	86·7	+9·2	+9·7	−0·5
July	74·5	−0·5	−2·4	+1·9	78·2	+0·6	−1·3	+1·9	88·3	+8·2	+5·9	+2·3	86·7	+9·2	+8·4	+0·8
August ...	72·6	−2·4	−3.3	+0·9	77·1	−0·5	−2·4	+1·9	89·1	+9·0	+1·8	+7·2	83·4	+5·9	+5·1	+0 8
September ...	72·8	−2·2	−2·2	0·0	77·5	−0·1	−1·8	+1·7	84·6	+4·5	+1·8	+2·7	82·6	+5·1	+4·8	+0·3
October ...	71·2	−3·8	−0 3	−3·5	75·3	−2·3	−0·2	−2·1	78·0	−2·1	−0·1	−2·0	80·1	+2·6	+1·2	+1·4
November ...	73·9	−1·1	−1·5	+0·4	76·7	−0·9	−2·2	+1·3	76·0	−4·1	−6·1	+2·0	74·1	−3·4	−4·5	+1·1
December ...	72·1	−2·9	−3·2	+0·3	74·0	−3·6	−5·1	+1·5	67·8	−12·3	−11·2	−1.1	65·4	−12·1	−10·0	−2·1

III.—Table showing the Pressure of Vapour at Belgaum, Poona, Deesa, and Kurrachee for each Month of the Year.

Months.	Belgaum.				Poona.				Deesa.				Kurrachee.			
	1877.	Variation.	Normal Variation.	Difference.	1877.	Variation.	Normal Variation.	Difference.	1877.	Variation.	Normal Variation.	Difference.	1877.	Variation.	Normal Variation.	Difference.
January	·476	−·117	−·116	−·001	·467	−·125	−·134	+·009	·323	−·218	−·231	+·013	·380	−·262	−·273	+·011
February	·447	−·146	−·112	−·034	·472	−·120	−·136	+·016	·331	−·210	−·204	−·006	·302	−·340	−·220	−·120
March	·479	−·114	−·064	−·050	·481	−·111	−·083	−·028	·424	−·117	−·155	+·038	·590	−·052	−·091	+·039
April	·540	−·053	+·007	−·060	·522	−·070	−·018	−·052	·519	−·022	−·053	+·031	·727	+·085	+·040	+·045
May	·597	+·004	+·087	−·083	·602	+·010	+·064	−·054	·645	+·104	+·089	+·015	·790	+·148	+·176	−·028
June	·705	+·112	+·108	+·004	·730	+·138	+·129	+·009	·778	+·237	+·199	+·038	·900	+.258	+·246	+·012
July	·693	+·100	+·093	+·007	·688	+·096	+·117	−·021	·774	+·233	+·249	−·016	·818	+·176	+·227	−·051
August	·687	+·094	+·076	+·018	·673	+·081	+·107	−·026	·721	+·180	+·244	−·064	·787	+·145	+·181	−·036
September	·708	+·115	+·068	+·047	·696	+·104	+·096	+·008	·700	+·159	+·195	−·036	·805	+·163	+·140	+·023
October	·710	+·117	+.036	+·081	·698	+·106	+·047	+·059	·505	−·036	+·021	−·057	·613	−·029	+·017	−·046
November	·541	−·052	−·069	+·017	·535	−·057	−·078	+·021	·396	−·145	−·146	+·001	·515	−·127	−·180	+·053
December	·535	−·058	−·116	+·058	·545	−·047	−·115	+·060	·372	−.169	−·211	+·042	·474	−·168	−·262	+·094

IV.—Table showing the Rain-fall at Belgaum, Poona, Deesa and Kurrachee during each Month of the Year.

Months.	Belgaum.			Poona.			Deesa.			Kurrachee.		
	1877.	Normal.	Difference.	1877.	Normal.	Difference.	1877.	Normal.	Difference.	1877.	Normal.	Difference.
January	0·00	0·10	−0·10	0·02	0·38	−0·36	0·00	0·17	−0·17	0·00	0·81	−0·81
February	0·00	0·03	−0·03	0·12	0·08	+0·04	0·65	1·07	−0·42	1·58	0·19	+1·39
March	0·00	0·37	−0·37	0·12	0·27	−0·15	0·05	1·12	−0·07	0·08	0·14	−0·06
April	3·66	1·77	+1·89	0·02	0·54	−0·52	0·00	0·00	0·00	0·22	0·00	+0·22
May	1·23	3·14	−1·91	0·23	1·63	−1·40	0·45	0·09	+0·36	0·00	0·03	−0·03
June	16·43	9·82	+6·61	8·85	6·22	+2·63	2·87	2·55	+0·32	0·00	0·26	−0·26
Jluy	2·78	14·29	−11·51	1·42	6·75	−5·53	2·82	8·27	−5·45	0·00	2·58	−2·58
August	7·69	9·34	−1·65	1·38	4·89	−3·51	0·00	9·04	−9·04	0·00	1·88	−1·88
September	6·63	2·99	+3·64	4·68	4·81	−0·13	2·89	2·20	+0·69	0·16	0·80	−0·64
October	7·42	4·43	+2·99	2·95	5·29	−2·34	1·87	0.93	+0·94	0·00	0·10	−0·10
November	0·04	0·67	−0·63	1·90	0·56	+1·34	0·00	0·11	−0·11	0·02	0·03	−0·01
December	0·60	6·44	+0·19	0·00	0·26	−0·26	0·09	0·02	+0·07	0·03	0·21	−0·18

V.—Table showing the Wind Frequency at Belgaum, Poona, Deesa, and Kurrachee during each Month of the Year.

Months.	Belgaum.						Poona.						Deesa.						Kurrachee.					
	North and South.			East and West.			North and South.			East and West.			North and South.			East and West.			North and South.			East and West.		
	1877.	Normal.	Difference.	1877.	Normal.	Difference.	1877.	Normal.	Difference.	1877.	Normal.	Difference.	1877.	Normal.	Difference.	1877.	Normal.	Difference.	1877.	Normal.	Difference.	1877.	Normal.	Difference.
January	−·68	−·33	−·35	+·52	+·94	−·42	+·10	−·22	+·32	+·24	+·44	−·20	+·72	+·82	−·10	+·16	+·18	−·02	+·26	+·34	−·08	+·50	+.39	+·1
February	−·48	−·10	−·38	−·72	+·44	−1·16	+·14	+·30	−·16	−·24	−·11	−·13	+·60	+·68	−·18	+·28	−·33	+·61	−·22	+·23	−·45	−·44	−·41	−·0
March	+·48	−·00	+·48	−·46	−·16	−·30	+1·06	+·64	+·42	−·36	−·56	+·20	+·02	+·27	−·25	−·42	−·71	+·29	−·94	+·11	−1·05	−1·30	−1·10	−·2
April	+·34	−·01	+·35	−·52	−·48	−·04	+1·08	+·80	+·28	−·46	−·56	+·10	+·10	+·03	+·07	−·74	−1·07	+·33	−1·10	−·04	−1·06	−1·40	−1·36	−·01
May	+·54	−·06	+·60	−1·20	−1·47	+·27	+1·10	+·77	+·33	−·94	−1·09	+·15	−·44	−·89	+·45	−·64	−1·26	+·62	−·90	−·11	−·79	−1·70	−1·59	−·14
June	+·08	−·51	+·59	−1·58	−1·64	+·06	+·12	+·05	+·07	−1·40	−1·46	+·06	−1·16	−·95	−·21	−·18	−0·64	+·46	−1·12	−·25	−·87	−1·60	−1·57	−·03
July	+·06	−·62	+·68	−1·98	−1·68	−·30	+·22	−·32	+·54	−1·66	−1·70	+·04	−1·62	−1·10	−·43	−·58	−·99	+·41	−1·06	·00	−1·06	−1·62	−1·60	−·02
August	+·03	−·34	+·42	−1·96	−1·75	−·21	+·32	−·18	+·50	−1·54	−1·66	+·12	−1·32	−1·02	−·30	−·96	−1·08	+·12	−·94	+·08	−1·02	−1·70	−1·59	−·11
September	+·08	−·17	+·25	−1·26	−1·65	+·39	+·20	+·24	−·04	−1·00	−1·42	+·42	−·62	−·43	−·19	−·42	−·93	+·51	−·90	+·02	−·92	−1·66	−1·57	−·03
October	−·56	−·00	−·56	+·10	+·14	−·04	−·52	+·27	−·69	+·46	+·21	+·25	−·14	+·06	−·20	+·46	−·27	+·73	−·36	−·03	−·33	−·90	−1·20	+·30
November	+·04	−·14	−·10	+1·82	+1·66	+·16	−·12	−·06	−·06	+1·54	+1·41	+·13	·00	+·53	−·53	+·44	+·35	+·09	−·04	+·27	−·31	−·54	−·33	−·21
December	−1·00	−·07	−·93	+1·30	+1·41	−·11	−·70	−·24	−·46	+·80	+1·14	−·34	+·30	+·71	−·41	+.16	+·20	−·04	+·54	+·25	+·29	+·44	+·36	+·08

VI.—Table showing the Values of the Principal Meteorological Elements at Bombay for each Month and for the whole Year : (1) for the typical Year, (2) for the Year 1877; and also the Excess of the Mean Values for 1877 over the Normal Values.

Months.	Barometric Pressure.			Pressure of Vapour.			Teperature of Air.			Total Fall of Rain.			Velocity of Wind in Miles per Hour.					
													North or South Component.			East or West Component.		
	Normal.	1877.	Excess of 1877.	Normal.	1877.	Excess of 1877.	Normal.	1877.	Excess of 1877.	Normal.	1877.	Excess of 1877.	Normal.	1877.	Excess. of 1877.	Normal.	1877.	Excess of 1877.
January ...	29·938	29·976	+ ·038	0·587	0·617	+ ·030	73·6	74·1	+0·5	0·12	0·23	+ 0·11	7·9 N	5·0 N	2·9 S	1·7 W	0·7 W	1·0 E
February ...	·907	·935	+ ·028	·595	·610	+ ·015	74·4	74·5	+0·1	0·01	0·51	+ 0·50	7·4 N	5·6 N	1·8 S	3·0 W	3·0 W	0·0
March ...	·860	·887	+ ·027	·707	·736	+ ·029	77·9	78·5	+0·6	0 00	0·02	+ 0·02	6·3 N	6·3 N	0·0	5·3 W	5·1 W	0·2 E
April ...	·798	·825	+ ·027	·811	·842	+ ·031	81·4	81·5	+0·1	0·04	0·00	− 0·04	4·5 N	5·8 N	1·3 N	6·6 W	6 ·9W	0·3 W
May ...	·753	·788	+ ·035	·874	·889	+ ·015	84·2	84·4	+0·2	0·53	0·00	− 0·53	0·5 N	2·3 N	1·8 N	7·9 W	8·4 W	0·5 W
June ...	·651	·710	+ ·059	·931	·949	+ ·018	83·3	83·8	+0·5	20·45	34·61	+14·16	7·2 S	5·1 S	2·1 N	10·0 W	6·6 W	3·4E
July ...	·649	·746	+ ·097	·904	·953	+ ·049	80·4	83·2	+2·8	24·12	10·75	−13·37	6·4 S	5·4 S	1·0 N	17·5 W	17·4 W	0·1 E
August ...	·712	·763	+ ·051	·882	·918	+ ·036	79·6	81·8	+2·2	12·83	10·78	− 2·05	3·2 S	1·3 S	1·9 N	15·2 W	11·2 W	2·0 E
September ...	·770	·806	+ ·036	·869	·925	+ ·056	79·7	81·8	+2·1	9·65	6·60	− 3·05	0·4 S	0·8 N	1·2 N	7·6 W	5·2 W	2·4 E
October ...	·829	·864	+ ·035	·847	·879	+ ·032	80·5	81·0	+0·5	2·02	6·39	+ 4·37	4·5 N	2·7 S	7·2 S	1·4 W	2·2 E	3·6 E
November ...	·902	·920	+ ·018	·692	·759	+ ·067	78·6	80·6	+2·0	0·49	0·00	− 0·49	5·3 N	4·9 N	0·4 S	1·4 E	0·5 E	0·9 W
December ...	·934	·916	− ·018	·644	·714	+ ·070	70·4	77·3	+0·9	0·05	0·0o	− 0·05	6·0 N	5·9 N	0·1 S	0·2 E	0·6 E	0·4 E

VII.—Table showing the Humidity at Belgaum, Poona, Bombay, Deesa and Kurrachee during each month of the year.

Months.	Belgaum.			Poona.			Bombay.			Deesa.			Kurrachee.		
	1877.	Normal.	Difference.	1877.	Normal.	Difference.	1877.	Normal.	Difference.	1877.	Normal.	Difference.	1877.	Normal.	Difference.
January	64	61	+3	61	56	+5	73	71	+2	52	50	+2	63	58	+5
February	54	55	—1	57	49	+8	71	70	+1	51	45	+6	46	61	—15
March...	49	54	—5	47	46	+1	76	74	+2	46	41	+5	68	63	+5
April	51	57	—6	45	46	—1	78	76	+2	42	37	+5	74	64	+10
May	54	68	—14	51	54	—3	75	75	0	44	42	+2	64	70	—6
June	78	80	—2	73	69	+4	82	82	0	52	52	...	71	69	+2
July	81	86	—5	71	76	—5	84	87	—3	58	65	—7	64	70	+6
August	86	87	—1	72	78	—6	85	87	—2	53	74	—21	69	74	—5
September	88	83	+5	74	75	—1	85	86	—1	59	69	—10	72	71	+1
October	93	74	+19	80	66	+14	83	81	+2	53	56	—3	60	67	—7
November	65	64	+1	58	56	+2	73	71	+2	44	48	—4	61	57	+4
December	68	62	+6	65	58	+7	76	71	+5	55	48	+7	76	56	+20

VIII.—Table showing the cloud proportion at Belgaum, Poona, Bombay, Deesa and Kurrachee for each month of the year.

Months.	Belgaum.			Poona.			Bombay.			Deesa.			Kurrachee.		
	1877.	Normal.	Difference.	1877.	Normal.	Difference.	1877.	Normal.	Difference.	1877.	Normal.	Difference.	1877.	Normal.	Difference.
January	—3·0	—2·6	—0·4	—2·7	—2·3	—0·4	—2·7	—2·6	—0·1	+ 1·5	—1·3	+ 2·8	+ 1·4	—0·5	+ 1·9
February	—2·8	—3·0	+0·2	—3·1	—3·3	+0·2	—2·7	—3·1	+0·4	—2·5	—1·8	—0·7	—1·9	—1·7	—0·2
March...	—2·9	—2·2	—0·7	—1·9	—2·2	+0·3	—1·7	—2·6	+0.9	—0·2	—0·9	+ 0·7	0·0	—0·3	+ 0·3
April	—2·4	—1·2	—1·2	—1·8	—1·7	—0·1	—1·4	—2·0	+0·6	—0·5	—1·6	+ 1·1	+ 0·5	—1·7	+ 2·2
May	—1·6	—0·1	—1·5	—1·7	—0·6	—1·1	—1·0	—0·3	—0·7	—0.7	—2·1	+ 1·4	—0·8	—0·8	0·0
June	+2·3	+2·9	—0·6	+2·4	+3·3	— 0·9	+2·7	+3·6	—0·9	+0·2	+ 1·5	—1·3	+ 0·9	+1·6	—0·7
July	+2·8	+3·3	— 0·5	+3·1	+4·2	—1·1	+3·3	+4·6	—1·3	+ 3·4	+ 4·4	—1·0	+ 3·7	+4·3	—0·6
August	+3·5	+ 3·1	+ 0·4	+2·9	+4·0	—1·1	+3·1	+4·5	—1·4	+ 2.4	+ 4.7	—2·3	+ 1·0	+4·1	—3·1
September	+3·2	+2·3	+ 0·9	+2·9	+2·6	+ 0·3	+2·3	+3·0	—0.7	+ 1·3	+ 2·2	—0·9	+ 0·6	+0·8	—0·2
October	+3·4	+0·7	+2·7	+2·7	0·0	+2·7	+1·4	0·0	+1·4	—1·3	—1·5	+ 0·2	—3·1	—2·3	—0·8
November	—1·9	—1·3	—0·6	—3·2	—1·8	—1·4	—3·2	—2·1	—1·1	—2·0	—2·2	+ 0·2	—1·5	—2·4	+ 0·9
December	—0·5	—2·3	+ 1·8	+0·7	—2·5	—3·2	+0·5	—2·8	+3·3	—2·1	—1·7	—0·4	—1·2	—1·5	+ 0·3

The subjoined table gives the monthly rain-fall, as noted at the head-quarters of each Collectorate.

Monthly Rainfall for 1877.

Districts.	Rain-fall in Inches.												
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Khandesh	1·32	0·67	0·03	0·04	0·09	3·94	3·31	9·58	1·82	1·10	..	0·93	22·33
Násik	0·50	0·57	0·20	0·01	0·43	6·01	5·18	3·12	4·68	3·13	..	0·29	24·08
Ahmednagar	..	0·18	0·17	0·04	0·59	6·20	0·65	2·59	4·77	3·24	0·51	0·18	19·03
Poona	..	0·16	0·12	0·13	1·05	8·00	3·58	3·70	6·44	3·24	0·40	0·07	25·71
Sholápur	..	0·03	0·13	0·74	0·30	8·16	2·41	4·25	10·69	5·59	0·01	0·68	32·99
Satara	..	0·28	0·03	0·36	0·74	10·81	5·89	7·37	10·53	6·91	0·73	..	43·66
Belgaum	..	0·02	0·03	1·21	1·50	10·89	1·62	4·66	10·44	8·98	0·06	0·80	40·16
Dharwar	..	..	0·01	2·33	2·24	5·02	0·88	2·19	9·14	8·73	0·24	1·76	32·55
Kaládgi	..	0·01	0·07	1·05	0·63	2·98	0·87	3·01	10·07	5·69	0·17	2·72	27·22
Kanara	..	..	..	0·86	0·90	23·65	12·43	19·54	9·65	10·86	0·35	0·91	79·16
Ratnágiri	..	0·06	..	..	0·37	35·89	17·52	21·04	15·10	10·88	0·27	0·35	100·65
Kolába	..	0·54	..	..	0·22	28·66	17·22	21·67	12·05	7·78	0·02	..	88·29
Bombay City	0·05	0·20	..	..	..	30·89	10·80	10·05	7·01	7·23	..	..	66·23
Tanna	..	0·97	0·08	..	0·32	13·98	22·51	13·49	8·28	5·13	..	..	64·79
Surat	..	0·61	..	..	..	5·42	6·40	4·79	2·57	5·99	..	0·02	27·47
Broach	0·35	0·50	..	..	0·21	2·32	3·29	1·65	3·22	4·32	..	..	15·87
Kaira	..	0·71	..	0·21	0·96	2·92	5·88	0·32	6·01	2·74	..	1·01	20·78
Panch Máháls	..	1·12	..	..	0·34	2·62	6·94	0·64	6·09	1·57	..	0·78	20·12
Ahmedabad	..	0·37	..	0·18	0·42	1·85	5·01	0·52	4·80	6·45	..	0·63	20·35
Kurrachee	..	0·68	0·24	1·11	0·21	0·19	0·01	..	3·40	0·09	..	0·19	6·06
Hyderabad	..	0·22	0·49	0·35	0·07	0·20	..	..	3·21	..	..	0·12	4·65
Thar and Párkar ..	..	0·48	0·19	0·24	0·40	0·25	0·47	..	4·14	0·59	..	..	6·75
Shikárpur	0·66	0·12	0·40	0·78	0·01	..	..	..	0·62	..	0·03	0·27	2·97
Upper Sind Frontier ..	..	0·05	0·04	0·36	0·11	0·03	..	..	0·60	0·15	0·47	0·32	2·14

A second table gives, for the places named, the annual rain-fall. It will be seen that in almost every instance, it was below the mean of five years.

Recorded rain-fall in each Collectorate of the Bombay Presidency;

No.	Districts or Collectorates.	Rain-fall in Inches.					Mean for 5 years.
		1873.	1874.	1875.	1876.	1877.	
1	Khandesh	30·00	22·30	33·03	12·67	22·83	24·17
2	Násik	7·15	52·55	60·96	25·70	24·08	34·09
3	Ahmednagar	34·31	29·57	20·59	10·80	19·03	22·86
4	Poona	32·25	72·95	63·05	25·81	25·71	43·95
5	Sholápur	11·42	36·82	22·37	6·19	32·99	21·96
6	Satara	42·06	101·49	107.99	39·19	43·66	66·88
7	Belgaum	35·48	46·46	39·10	21·25	40·16	36·49
8	Dharwar	26·89	38·81	20·85	13·86	32·55	26·59
9	Kaládgi	15·73	38·30	24·51	4·76	27·22	22·10
10	Kanara	81·01	118·57	93·14	73·74	79·16	89·12
11	Ratnágiri	92·74	153·28	121·01	65·06	100·65	106·55
12	Kolába	...	125·20	121·69	88·00	88·29	105·79*
13	Bombay City	81·47	89·63	80·96	53·97	66·23	74·45
14	Tanna	113·08	139·69	132·46	84·56	64·79	106·92
15	Surat	47·43	57·69	62·49	51·32	27·47	49·28
16	Broach	35·35	39·56	56·88	33·53	15·87	36·24
17	Kaira	22·86	42·91	35·15	31·87	20·78	30·71
18	Panch Máháls	21·86	37·20	42·50	41·63	20·12	32·66
19	Ahmedabad	23·50	31·32	27·51	26·70	20·35	25·88
20	Kurrachee	2·96	9·70	7·15	9·59	6·06	7·09
21	Hyderabad...	9·24	9·82	11·78	7·43	4·65	8·58
22	Thar and Párkar	9·95	14·62	12·57	10·96	6·75	10·97
23	Shikárpur	7·14	9·54	4·24	4·90	2·97	5·76
24	Upper Sind Frontier ...	4·32	8·54	2·97	7·76	2·14	5·15

* For 4 years only.

I think it may be accepted that the figures in these two last tables are less reliable than those on the first, which are recorded at the stations of the Meteorological Department.

From the table, which exhibits the average ordinary prices of staple food, it will be seen that they were high.

Statement showing the Average Ordinary Prices of the staple Food in each of the undermentioned Districts of the Bombay Presidency, as compared with the prices prevailing in each fortnight of the year 1877.

DISTRICTS.	Staple Grains.	Ordinary Price in lbs. per Rupee.	Prices in lbs. per rupee for the fortnight ending																						
			15th January.	31st January.	15th February.	29th February.	15th March.	31st March.	15th April.	30th April.	15th May.	31st May.	15th June.	30th June.	15th July.	31st July.	15th August.	31st August.	15th September.	30th September.	15th October.	31st October.	15th November.	30th November.	15th December.	31st December.
Khandesh	Jowari	56	31	32½	32½	30	34¼	34½	32½	30½	30	29	27½	27¼	25½	24½	18½	16½	18	17	19½	23½	20½	27½	27⅛	20⅛
	Bajri	54	29½	29½	28¼	26½	28½	28½	28½	28¼	27½	26½	24⅛	26	24⅛	21½	18½	16½	17½	16⅝	18½	20½	24½	22½	23½	23⅛
Nasik	Jowari	54	30⅝	33⅛	32⅝	30½	30⅝	30⅝	30¼	30½	28	25	25	25	..	21	15½	13⅝	19	19½	22⅝	30½	31¼	22½	30¼	30⅛
	Bajri	47	25½	25½	25½	25½	25½	25½	25½	25½	23⅝	22½	22½	22⅛	21	17⅛	13⅝	13⅝	14⅝	15½	18	18½	20⅛	19⅝	20½	21
Ahmednagar	Jowari	76	27½	25½	24	23½	23⅝	23½	23½	23½	22½	21⅛	21½	20⅛	18⅝	15¼	13¼	13½	12½	13	16¼	19⅝	21	23½	23¼	23⅛
	Bajri	66	26½	24⅛	23½	23½	23½	23½	23½	23½	22	20⅝	20½	20½	19	15¼	13¼	13½	13¼	13⅝	16¼	19½	20⅛	21⅝	24½	24½
Poona	Jowari	65	21½	23⅛	23¼	23½	23⅝	23½	21⅝	21⅛	19½	19½	19½	19⅝	15½	13	12½	13½	14	19½	17½	19½	21½	21½	21½	21⅛
	Bajri	51	23	23	23	23	23	23	20½	20⅛	19½	19⅛	19¼	19½	15	13⅛	12⅛	13½	13¾	17½	17½	19¼	18½	18½	18¼	18⅛
Satara	Jowari	39	21½	21⅛	23½	23⅛	22½	20	18½	17½	16	17½	16½	16½	12	10½	12½	11⅛	13½	18⅛	21½	21½	21⅛	21½	24	26⅛
	Bajri	35	20⅛	20⅛	20⅝	20⅝	20½	19½	18⅝	18	16⅝	16½	16½	16⅝	12⅝	10½	12½	11⅛	15½	18	23⅛	23½	23½	20⅝	25⅝	28⅛
Sholápur	Jowari	66	19	20½	19½	19	19½	19⅝	17½	17½	18	17⅝	16½	16⅝	13⅛	13	12	11	11½	20½	14⅛	17½	16½	17½	17½	19⅝
	Bajri	60	22	23⅝	21	21	22	23	20⅛	19½	19½	17⅝	16⅝	16⅝	14⅝	13⅝	12	11	11	20½	24⅝	29½	27⅛	25⅝	25⅝	25⅛
Belgaum	Jowari	43	21	20	20	20	20	20	18½	17½	16	17¼	16½	16⅛	12	10½	12⅝	11½	13½	18⅛	21½	21½	21½	21½	24	26⅛
	Bajri	54	21½	20½	21	21	21	21	20	19¼	16½	17	16	17¼	12½	9⅝	9½	9⅝	12	16	18⅝	17½	31½	28½	29	30⅛
Dharwar	Jowari	50	18⅝	18½	19½	21⅝	21	19½	17½	17¼	16⅝	15⅝	14	13	10	9½	10⅝	10⅝	10⅝	15	15⅝	15½	21	27	32½	37⅛
	Bajri	43	19½	20⅝	20½	23	21	21	19	18½	18	17	15	13	10½	9½	10⅝	10⅝	10½	14	14½	14½	24½	30⅝	33	38
Kaladgi	Jowari	56	15½	16⅝	16½	16½	15½	14½	12½	12½	11⅛	10½	10½	8⅝	8½	8½	..	..	9⅝	12	12½	12½	21	20½	20⅛	25⅛
	Bajri	76	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	24⅝	26½	28⅛	32½
Kanara	Jowari	35	24	24	24	24	24	22	22	20	20	18	18	18	16	12	..	..	18	20	25	32	36	30	28	28
	Bajri	32	20	22	22	22	22	22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ratnagiri	Jowari	38	22⅛	22½	22½	22½	22½	22½	21½	20	17½	18⅛	17½	17½	..	..	11½	11⅝	17½	17½	20	20	20	20	20	25
	Bajri	38	23⅛	23⅛	23½	23⅛	23⅛	23⅛	22	20⅛	18½	18⅛	18⅛	18⅛	16⅛	11⅛	11½	11⅝	11½	11½	11½	11½	11½	11⅛	11⅛	18
Kolaba	Jowari	42	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Bajri	87	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bombay City	Jowari	40	27½	27½	27⅛	27½	27½	27½	27⅛	25½	23⅛	22⅝	22⅛	22⅛	22½	18⅝	19⅛	14	13⅝	13⅝	14⅛	16	18	18⅛	18⅛	19⅛
	Bajri	31	25½	25½	25½	26	26⅛	27½	26	25½	23½	23½	22½	22⅛	22½	20⅝	19⅛	14	14⅛	14½	15½	16⅛	19⅛	21	19½	20
Tanna	Jowari	41	27	27	22½	22½	22½	21⅝	21⅝	21½	21½	21½	20	20	17½	15½	15½	15½	14	14	14	14	14	15½	15½	16
	Bajri	40	21½	21½	21	21	21	21	21	21	21	21	20½	20½	18½	15½	15⅝	15½	15½	15½	15½	15½	15½	16⅝	16½	16⅛
Surat	Jowari	40	22⅝	23⅝	22⅛	24½	24½	26⅝	24½	25½	22⅝	22⅝	22	22½	19⅝	17½	17½	15⅝	15½	16	16	17½	19⅝	18⅛	22⅝	22
	Bajri	36	23⅝	22	22	24½	23⅝	24½	24½	25⅝	26⅝	23	22⅝	23⅛	21	17⅝	17½	15⅝	15½	15½	17½	19⅝	18½	18⅛	18⅝	18⅛
Broach	Jowari	40	22⅝	29	29	32	32	32	26½	26¼	26⅝	24½	24½	24⅝	22¾	19½	16	16	16	14½	15¼	21½	20	20	22⅝	20
	Bajri	36	26½	26½	26⅝	26¼	26½	26½	26½	26½	25⅝	21½	21½	21½	21½	19	16	16	15½	16	16	18⅝	17½	16⅝	17⅝	17⅝
Kaira	Jowari	51	33½	33½	32	32	32	32	26⅝	24½	26½	22⅝	22¼	22½	14½	11½	13½	15½	16⅝	20	23⅝	20	22½	20	20	20
	Bajri	43	27⅝	27½	27⅝	26½	27⅝	26½	26½	26½	23½	23⅝	22½	22⅝	22⅝	21½	14⅝	11½	15½	13⅝	15½	17⅝	17⅝	16⅝	17⅝	16½
Panch Máhàls	Jowari	53	45	40	40	40	40	40	40	34½	34½	25	25	25½	26½	26½	21½	16	19½	17⅛	17⅝	17⅝	20	18½	17⅝	19½
	Bajri	47	32	32	32	29	29	29	29	29	29	23	23	23½	24½	23½	21½	16	14⅝	15	14⅝	14⅝	14½	14½	14⅝	14⅝
Ahmedabad	Jowari	47	36	38	38	38	30	32	30½	30	30	27⅝	27⅝	30	30	20	18	13	14	15	18	18	18	20	22	20
	Bajri	43	28	29½	28	28	27	27	27	25½	25½	23	21¼	22⅝	22⅝	20	18	13	16	15	15	19	19	20	20	18

JOHN LUMSDAINE,
Sanitary Commissioner.

SECTION II.

EUROPEAN ARMY.

On the 1st January 1877, the strength of the European Troops in the Bombay Command is stated, in the return kindly furnished to this Department by the Adjutant General, to have been as follows:—

	Effectives.	Unattached List.	Total Strength.
Strength, 1st January 1877 ...	10,090	335	10,425

During the year 1,513 recruits were received from England and 26 men were recruited in India. 946 men were received from other Presidencies and from the unattached list, the total transfers amounting to 1,006; whilst one deserter was sent back to his regiment. The total increase in strength during the year amounted to 2,546 men, but from this number must be deducted 1,719 men who were struck off the strength of the Army for the following causes:—

	Effectives.	Unattached List.	Total.
Died...	116	9	125
Discharged in India	46	2	48
Deserted	8	.....	8
Transfers given	99	29	128
Invalided and Pensioned ...	396	6	402
Time-expired	380	.....	380
To England on duty	626	.....	626
Promoted to honorary commissions.	.....	2	2
Total ...	1,671	48	1,719

so that on the 1st January 1878 the strength of the European Troops in the Bombay Command was—

	Effectives.	Unattached List.	Total Strength.
Strength, 1st January 1878 ...	10,926	326	11,252

Sickness and mortality among European Troops in 1877 as compared with the preceding 5 years.

The statistics of the sickness and mortality among the European Troops, however, are derived from the weekly returns, for corrected copies of which I am indebted to the courtesy of the Surgeon General, British Forces, in which the average annual strength of the European Troops serving in this Presidency during 1877, is found to have been 10,061.

The following statement shows these results since 1872:—

Years.	Average Strength.	Admissions into Hospital.	Ratio of Admissions per 1,000 of Strength.	Average Number of Daily Sick.	Ratio of Average Daily Sick per 1,000 of Strength.	Number of Deaths.	Ratio of Deaths per 1,000 of Strength.
1872 ...	10,819	17,186	1588·5	544	50·3	204	18·86
1873 ...	10,665	14,036	1316·1	531	49·8	125	11·72
1874 ...	10,529	13,542	1286·2	560	53·2	112	10·64
1875 ...	10,184	14,298	1404·0	546	53·6	213	20·92
1876 ...	10,116	13,328	1317·5	540	53·4	125	12·36
Mean ...	10,463	14,478	1382·5	544	52·1	156	14·90
1877 ...	10,061	13,696	1361·3	583	57·9	117	11·63

The admissions into hospital from which the ratio of sickness is deduced were 43·8 per 1,000 of strength higher in 1877 than in the preceding year, though it is 21·2 per mille below the mean of the preceding 5 years; whilst 583 men were, in 1877, constantly sick in hospital against 540 in 1876. This is the highest number attained in the 6 years, the ratio per 1,000 exceeding that of 1876 by 4·5, and that of the mean by 5·8. Although the year as regards sickness was much more unhealthy than the preceding one, it is satisfactory to notice the fall in the death-rate, as only 117 deaths, equal to a ratio of 11·63 per 1,000, were recorded.

The general results of the year 1877 then stand thus:—It stands 4th of the series as regards its rate of admissions into hospital; 2nd as regards the rate of deaths; and 6th as regards the ratio of average daily sick.

Principal causes of admissions into hospital, as compared with the preceding 5 years.

The principal causes of admissions into hospital during 1877 as compared with the preceding 5 years, are shown in the next table.*

Year.	1872.		1873.		1874.		1875.		1876.		Mean for 5 years.		1877.	
Strength.	10,819		10,665		10,529		10,184		10,116		10,463		10,061	
Principal Causes of Admissions into Hospital arranged in order of prevalence in 1877.	Number.	Ratio per 1,000 of Strength.	Number.	Ratio per 1,000 of Strength.	Number.	Ratio per 1,000 of Strength.	Number.	Ratio per 1,000 of Strength.	Number.	Ratio per 1,000 of Strength.	Number.	Ratio per 1,000 of Strength.	Number.	Ratio per 1,000 of Strength.
Malarial fevers	6,612	611·2	5,185	486·1	4,623	439·1	5,276	518·0	4,860	480·4	5,311	507·0	4,550	452·2
Venereal diseases	1,675	154·8	1,931	181·1	1,798	170·8	1,776	174.4	1,816	179·5	1,799	172·1	1,972	196·0
Wounds and accidents	878	81·1	1,017	95·4	1,070	101·6	1,120	110·0	994	98·3	1,016	97·3	1,081	107·4
Diarrhœa	691	63·9	467	43·8	480	45·6	720	70·7	484	47·8	568	54·4	552	54·9
Respiratory diseases	525	48·5	746	70·0	678	64·4	703	69·0	364	36·0	603	57·6	419	41·6
Abscess and ulcers	1,000	92·4	1,103	103·4	1,168	110·9	1,103	108·3	365	36·1	948	90·2	407	40·4
Rheumatism	553	51·1	535	50·2	574	54·5	476	46·7	327	32·3	493	47·0	377	37·5
Hepatitis	378	34·9	555	52·0	506	48·0	411	40·4	406	40·1	451	43·1	306	30·4
Dysentery	374	34·6	289	27·1	250	23·7	295	29·0	271	26·8	296	28·2	288	28.6
Eye diseases	196	18·1	267	25·0	228	21·7	260	25·5	241	23·7	239	22·8	183	18·2
Total of these ten causes...	12,882	1,190·7	12,095	1,134·1	11,375	1,080·4	12,140	1,192·1	10,128	1,001·2	11,724	1,119·7	10,135	1,007·2
Total from all causes...	17,186	1,588·5	14,036	1,316·1	13,542	1,286·2	14,298	1,404·0	13,328	1,317·5	14,478	1,382·5	13,696	1,361·3

It is satisfactory to notice the fall in the admission-rate from malarial fevers in 1877 as out of every 1,000 men 452 were admitted from this cause against 480 per mille in the preceding year. In 1874, 439 men per 1,000 who were suffering from these diseases, passed through the hospital, but with this exception in the year under report, there were fewer admissions from malarial fevers than in any of the preceding five years. Doubtless some of the above admissions took place in the same individual, but the returns do not enable us to show the number

* In this and in the subsequent forms I have followed as much as possible those given in the report of the Sanitary Commissioner with the Government of India.

of individuals as contrasted with the number of cases. Satisfactory as the fall is, yet when it is considered that 33·2 per cent. of the total admissions during the year among European soldiers were caused by malarial fevers, it would appear that measures to remove local insanitary causes are urgently needed. Venereal diseases occupy, as usual, the second place among the principal diseases which affect the European Troops in this Presidency. In 1877, 196 men in every 1,000, or 14·4 per cent. of the total admissions, were laid up during the year with some form of venereal disease.

The ratio of these diseases during the year was 17 per 1,000 in excess of the preceding one.

The following statement shows the number of admissions from each form of the disease in 1877 as contrasted with 1876:—

Venereal Diseases.	1876.		1877.	
	Strength 10,116.		Strength 10,061.	
	Admissions into Hospital.	Ratio per 1,000.	Admissions into Hospital.	Ratio per 1,000.
Primary syphilis	610	60·3	661	65·7
Secondary syphilis	291	28·8	190	18·9
Gonorrhœa	842	83·2	1,021	101·5
Phymosis	6	0·6	11	1·1
Bubo	8	0·8	14	1·4
Epididymitis	22	2·2	26	2·6
Balanitis	24	2·4	44	4·4
Gleet	13	1·3	5	0·5
Total ...	1,816	179·5	1,972	196·0

After the above causes follow in order of prevalence wounds and accidents which caused 10·1 per 1,000 more admissions than the mean of the preceding 5 years; diarrhœa, the number of admissions from which disease is slightly above the quinquennial mean; respiratory diseases which though 16·0 per 1,000 less than the mean, yet caused 5·6 per 1,000 more admissions in 1877 than in the preceding year. Abscess and ulcers caused 4·3 per 1,000 more admissions than in 1876 though the fall over the mean amounting to 49·8 per 1,000 is satisfactory. Rheumatism was also more prevalent in 1877 than in 1876, the increase among admissions from this cause being 5·2 per 1,000. Hepatitis only caused 30·4 men per 1,000 of strength to be admitted into hospital, and this disease in 1877 stands eighth on the list instead of fifth as it did last year. The admission-rate for 1877 is the lowest yet observed. A slight rise over the mean is remarked under dysentery, and this disease was more prevalent in 1877 than in the year before. Eye diseases only gave an admission-rate of 18·2 per 1,000 against 23·7 in 1876 and 22·8 the mean of the preceding 5 years.

Fifteen admissions are recorded from cholera against 5 in 1876. For enteric fever, 22 men were admitted. Eighteen cases of small-pox were admitted during the year, but none proved fatal. Only 2 cases of apoplexy are returned, but a patient admitted with another disease was attacked and died from apoplexy whilst in hospital.

Forty-one cases of phthisis pulmonalis were admitted into hospital.

Principal causes of deaths as compared with the preceding 5 years.

The following statement shows the number and principal causes of deaths among the European Troops in 1877 and previous 5 years :—

Year.	1872.		1873.		1874.		1875.		1876.		Mean for Five years.		1877.	
Strength.	10,819		10,665		10,529		10,184		10,116		10,463		10,061	
Causes of Deaths arranged according to order of prevalence in 1877.	Number.	Ratio per 1,000 of Strength.	Number.	Ratio per 1,000 of Strength.	Number.	Ratio per 1,000 of Strength.	Number.	Ratio per 1,000 of Strength.	Number.	Ratio per 1,000 of Strength.	Number.	Ratio per 1,000 of Strength.	Number.	Ratio per 1,000 of Strength.
Enteric fever	24	2·22	14	1·31	14	1·33	18	1·77	16	1·58	17	1·64	15	1·49
Suicide	7	0·65	3	0·28	2	0·19	3	0·29	5	0·49	4	0·38	10	0·99
Phthisis pulmonalis	18	1·66	11	1·03	6	0·37	13	1·28	9	0·89	11	1·05	7	0·69
Malarial fevers	8	0·74	6	0·56	8	0·76	13	1·28	3	0·30	7	0·76	6	0·59
Respiratory diseases	7	0·65	4	0·38	6	0·57	8	0·79	10	0·99	7	0·68	5	0·50
Injuries	11	1·01	8	0·75	15	1·43	11	1·08	18	1·77	13	1·21	4	0·40
Dysentery	13	1·20	6	0·56	4	0·57	9	0·88	6	0·59	8	0·76	3	0·30
Apoplexy	28	2·59	15	1·41	12	1·14	22	2·16	2	0·20	16	1·50	3	0·30
Heart diseases	10	0·92	13	1·22	11	1·04	9	0·88	12	1·19	11	1·05	3	0·30
Hepatitis	20	1·85	25	2·35	18	1·71	18	1·77	2	0·20	17	1·58	1	0·10
Total of these ten causes	146	13·49	105	9·85	96	9·11	124	12·18	83	8·20	111	10·61	57	5·66
Total from all causes	204	18·86	125	11·72	112	10·64	213	20·92	125	12·36	156	14·90	117	11·63

Of the 22 men who were admitted into hospital suffering with enteric fever, 15 or 68·18 per cent. of cases treated, died. The number of fatal cases (15) from this disease is 2 less than the average and one less than in 1876, the rate per 1,000 being 1·49 against 1·58 in 1876 and 1·64, the mean of the preceding 5 years. Ten men, or six more than the average, committed suicide. This is the highest number of suicides in the European Army ever recorded. Seven deaths resulted from phthisis pulmonalis against 9 in 1876, the difference in rate per 1,000 being 20; whilst it is 0·36 below the mean of the previous 5 years. Malarial fevers if less prevalent were more fatal in 1877 than in the previous year, the number of deaths being double those for 1876; but respiratory diseases only caused 5 against 10 deaths in 1876. A satisfactory diminution in the number of fatal cases from injuries is observed, as in 1877 only 4 men lost their lives from injuries against 18 in 1876: whilst 13 deaths on the average occurred during the previous 5 years. A less mortality is also observed under the heading of dysentery, hepatitis, and heart disease, all of which diseases were considerably less fatal in 1877 than in any of the preceding 5 years. Apoplexy caused 3 deaths. This is 1 in excess of last year. Of the 15 admissions into hospital from cholera, 10 or 67 per cent. died. In 1876 there were only 2 deaths among the 5 persons admitted.

Annual loss of service and strength.

The following table shows the annual loss of service and strength among the European Troops serving in Bombay since 1872:—

Year.	Average Strength.	Loss of Service. Average Annual Ratio per 1,000. Admissions into Hospital.	Average Daily Sick.	Average Number of Days spent in Hospital per Man.	Loss of Strength. Average Annual Ratio per 1,000. Deaths in and out of Hospital.	Invaliding. For Change of Climate.	For Discharge.	Total.
1872	10,818	1,588	50	18·10	18·86	33·06	9·40	42·46
1873	10,665	1,316	50	17·72	11·72	36·14	7·53	43·67
1874	10,529	1,286	53	18·54	10·64	35·39	9·68	45·06
1875	10,184	1,404	54	20·01	20·92	35·30	5·27	40·57
1876	10,116	1,317	53	19·48	12·36	37·27	10·38	47·65
Mean	10,463	1,382	52	18·77	14·90	35·43	8·45	43·88
1877	10,061	1,361	58	21·17	11·63	36·67	11·63	48·30

Return of married and unmarried men.

The number of married and unmarried European non-commissioned officers and soldiers in each branch of the army is shown in the next table:—

Corps.	Staff Serjeants.				Serjeants.				Drummers and Rank and File.				Total of all Ranks.		
	Establishment in India.	Married.	Unmarried.	Percentage of Married to actual Strength.	Establishment in India.	Married.	Unmarried.	Percentage of Married to actual Strength.	Establishment in India.	Married.	Unmarried.	Percentage of Married to actual Strength.	Married.	Unmarried.	Percentage of Married to actual Strength.
Artillery	51	45	7	86·53	96	45	47	48·91	2,280	167	2,114	7·32	257	2,168	10·59
Cavalry	9	6	5	54·54	24	11	12	47·82	421	34	347	8·92	51	364	12·28
Royal Engineers ...	...	...	...	...	...	5	...	100·	...	18	5	78·26	23	5	82·14
Sappers and Miners...	2	3	...	100·	4	4	...	100·	8	4	4	50·00	11	4	73·33
Infantry	90	52	23	69·33	369	158	175	47·44	7,533	499	6,428	7·23	709	6,626	9·66
Total...	152	106	35	75·17	493	223	234	48·79	10,242	722	8,898	7·50	1,051	9,167	10·28

75 per cent. of the staff serjeants and 49 per cent. of the serjeants, but only 7·5 per cent. of the rank and file among all arms, and in the Infantry only 7·23 per cent. are married. In the Artillery the percentage to actual strength of married men is 10·59, whilst 12·28 per cent. of Cavalry soldiers are married. In the Royal Engineers and Sappers and Miners the married men are largely in excess of the unmarried; but in Infantry Regiments only 9·66 per cent. men in every 100 are married.

Taking all ranks together the percentage of married men in the Army is somewhat less than in 1876.

Total Abstainers.

The number of total abstainers, the amount of liquor consumed in the canteen, and other particulars regarding each regiment of British Troops serving in Bombay Presidency in 1877, are shown in the statement on the next page.

In the whole army 1,196 men, or 10·95 per cent. of strength, were total abstainers; and the highest percentage among different regiments is found among the 2/7th Foot, who last year occupied the third place on the list, but in 1877 the number of total abstainers in the regiment amounted to 29·69 per cent. of strength. This is approached by the 83rd Foot, which shows a percentage of 24·60. After it come in descending ratios the I, 1st R. A. with 19·18 per cent., the 68th Foot with 18·95, the M, 1st R. A. with 17·28 per cent., the E/B R. H. A. with 16·56 per cent., and so down to the 15/8th R. A., from which corps only 1 total abstainer, out of a strength of 80, is returned.

The highest percentage of cases of drunkenness to average strength is found in the 16/8th R. A., where the very high figure of 110·26 per cent. was recorded. Next comes the C/2nd R. A. with 80·86, the 83rd Foot 78·72 per cent., 2/7th 67·55 per cent., 19/8th R. A. 62·82 per cent., F/2nd R. A. 62·59 per cent.; and the remaining corps in descending ratios to the A/2nd R. A., where the cases of drunkenness were 17·47 per cent. of strength. In the whole army there were 5,122 cases of drunkenness, equal to 46·91 per cent. of strength, reported during the year.

1	2	3		4		5	6	7		8		9		10	
Corps.	Average Strength during the year.	Total Abstainers.		Average Number of Men drawing Liquor Daily from the Canteen.		Average Daily Consumption of Malt Liquor per Head per annum.	Average Daily Consumption of Spirits per Head per annum.	Cases of Drunkenness reported during the year.		Cases of Crime punished by Commanding Officer.		Cases tried by Court Martial.		Men invalided to the Hills during the Year.	
		No.	Percentage on Average Strength.	No.	Percentage on Average Strength.			No.	Percentage on Average Strength.	No.	Percentage on Average Strength.	No.	Percentage on Average Strength.	No.	Percentage on Average Strength.
3rd Hussars	414	2	·48	367	88·65	15/16 quarts.	7/8 dram.	89	21·50	287	69·32	10	2·41	66	15·94
D-B Royal Horse Artillery	165	11	6·67	141	85·45	1 do.	1 do.	32	19·39	165	100·0	9	5·45	7	4·25
E-B do.	163	27	16·56	132	80·98	3/4 do.	1/8 do.	52	31·90	107	65·64	4	2·45	4	2·45.
Head-Quarters, late 4th Brigade R.A. ...	7	...	...	7	100·0	1 do.	1 do.	...	...	...	...	...	...	...	...
Do. 6th do.	7	...	...	7	100·0	1 do.	1 do.	...	...	...	...	...	...	1	14·28
Do. 9th do.	6	...	...	6	100.0	1 do.	1 do.	...	...	...	...	...	...	...	...
I-1 Royal Artillery	146	28	19·18	109	74·66	1 do.	3/8 do.	47	32·19	190	130·14	15	10·27	19	13·01
M-1 do.	162	28	17·28	123	75·93	1 do.	1 do.	43	26·54	196	120·99	17	10·49	12	7·41
N-1 do.	158	3	1·90	144	91·14	1 do.	1 do.	45	28·48	167	105·71	8	5·06	10	6·33
A-2 do.	166	2	1·20	160	96·39	1 do.	1 do.	29	17·47	71	42·77	7	4·20	13	7·83
B-2 do.	157	9	5·73	103	65·61	7/8 do.	1/16 do.	92	58·60	146	92·99	7	4·46	2	1·27
C-2 do.	162	12	7·41	144	88·89	1 do.	1 do.	131	80·86	238	148·15	13	8·02	...	...
D-2 do.	169	3	1·77	132	78·11	3/4 do.	1/2 do.	41	24·26	155	91·72	9	5·33	18	10·65
E-2 do.	156	7	4·49	104	66·67	7/8 do.	3/32 do.	42	26·92	251	160·90	16	10·26	...	...
F-2 do.	163	3	1·84	128	78·53	1 do.	1 do.	102	62·59	208	127·61	16	9·81	5	3·07
G-2 do.	160	7	4·37	124	77·50	1 do.	1 do.	54	33·75	201	125·62	10	6·25	...	...
15-8 do.	80	1	1·25	74	92·50	1 do.	1 do.	44	55·00	78	97·50	7	8·75	18	22·50
16-8 do.	78	3	3·84	69	88·46	7/8 do.	3/4 do.	86	110·26	120	153·85	10	12·82	...	...
17-8 do.	80	...	...	76	95·00	9/10 do.	23/32 do.	41	51·25	96	120·0	11	13·75	...	...
18-8 do.	75	...	...	63	84·00	1 do.	1 do.	31	41·33	62	82·67	3	4·00	...	...
19-8 do.	78	9	1·15	63	80·77	3/4 do.	3/4 do.	49	62·82	102	130·77	11	14·10	...	...
1-9 do.	79	3	3·80	70	88·61	1 do.	1 do.	40	50·63	76	96·20	5	6·33	17	21·52
Royal Engineers	42	...	...	41	97·62	1 do.	1 do.	1	2·38	17	40·48	1	2·38	...	...
1-2nd Foot	802	93	11·60	526	65·59	2/3 do.	2/3 do.	284	32.92	826	102·99	37	4·61	165	20·57
2-7th do.	832	247	29·69	447	53·73	1/2 do.	1/2 do.	562	67·55	979	117·67	51	61·30	3	0·36
1-8th do.	785	36	4·59	685	87·26	1 do.	1 do.	420	53·50	838	106·75	18	2·29	34	4·33
2-11th do.	745	17	2·28	333	44·70	1/2 do.	1/4 do.	341	45·77	1,305	175·17	39	5·23	28	3·76
2-15th do.	860	87	10·12	653	75·93	1/2 do.	1 do.	334	38·84	874	101·63	77	8·95	31	3·60
2-17th do.	875	63	7·20	665	76·00	3/4 do.	3/4 do.	498	56·91	906	103·54	65	7·43	22	2·51
56th do.	515	35	6·80	480	93·20	1 do.	1 do.	151	29·32	273	53·01	25	4·85	...	...
66th do.	874	74	8·47	519	59·38	1 do.	3/4 do.	425	48·63	514	58·81	37	4·23	...	...
68th do.	823	156	18·95	620	75·33	3/4 do.	3/4 do.	280	34·02	632	76·79	31	3·77	...	...
83rd do.	935	230	24·60	517	55·29	3/4 do.	1/2 do.	736	78·72	1,167	124·81	36	3·85	97	10·37
Total ...	10,919	1,196	10·95	7,832	71·73	...	...	5,122	46·91	11,247	103·0	605	5·54	572	5.24

Statistics of Divisions and Districts.

The statistics of sickness and mortality among the European Troops in each Division or District are shewn in the following table :—

	Average Strength.	Admissions into Hospital.	Ratio of Admissions per 1,000 of Strength.	Average Number Daily Sick.	Ratio of Average Daily Sick per 1,000 of Strength.	Number of Deaths.	Ratio of Deaths per 1,000 of Strength.
Bombay District	519	1,269	2,445·1	44.25	85·26	7	13·49
Northern Division ...	1,162	1,521	1,309·0	53·80	46·30	20	17·21
Sind District	1,205	1,515	1,257·3	62·79	52·11	11	9·13
Aden Brigade	708	594	839·0	24·93	35·21	7	9·89
Poona Division	2,572	3,612	1,404·4	165·89	64·50	33	12·83
Belgaum District... ...	1,010	1,082	1,071·3	59·61	59·02	10	9·90
Mhow Division	2,503	3,570	1,426·3	153·29	61·24	24	9·59
Marching (Effectives) ...	139	64	460·4	1·43	10·29	1	7·19
Invalids and Convalescents ...	239	463	1,937·2	17·48	73·13	4	16·74
Marching (Invalids and Convalescents)	4	6	1,500·0	...	...	...	...
Bombay Presidency ...	10,061	13,696	1,361·3	583·47	57·9	117	11·63

Admission-rate.

The ratio of admissions into hospital per 1,000 of strength was highest in the Bombay District, where, out of an average annual strength of 519 men, 1,269 admissions, equal to a rate of 2,445·1 per 1,000, took place. This is even higher than in 1876 when it attained the high ratio of 1,813 per mille. In fact, in every Division, except Sind and Mhow, the admission-rate was higher in 1877 than in the preceding year. The lowest rate was at Aden, where 839 men per 1,000 of strength were admitted into hospital during the year. Even in those below the mean, the rate for the year under report was higher than 1876. In Belgaum it increased from 953 per 1,000 in 1876 to 1,071 in 1877. In the Northern Division it rose from 1,205 in 1876 to 1,309.

Daily sick-rate.

As regards the daily sick-rate, the Bombay District again heads the list, as 85 men per 1,000 were constantly sick in hospital against 69 in 1876; in the Poona Division there were 64 against 51 in the preceding year; in the Belgaum District 59 against 49 in 1876. In the Mhow Division it was slightly less than in 1876. The lowest daily sick-rate was at Aden, where it amounted to 35·21 per 1,000. This is less than 1876, when it reached 37·5 per 1,000. A high rate, 73·13, is observed among invalids and convalescents, though this is considerably less than in 1876, when it reached 112 per 1,000. In the Northern Division 46 men per 1,000 were constantly sick in 1877 against 49 in 1876. In Sind the rate was 52 against 49 in the preceding year.

Death-rate.

The highest death-rate obtained in the Northern Division 17·21 and the lowest in Sind 9·13. The rates for Bombay District 13·49 and Poona 12·83 are above the mean, whilst Sind 9·13, Belgaum 9·90, Mhow 9·59, and the Aden Brigade 9·89 are below it.

Admission-rate by months.

The following table shews the average admission rate per 1,000 of strength in each month of the year :—

January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Year.
75·9	73·5	104·8	97·7	104·2	132·6	113·8	147·9	133·6	122·1	156·7	98·5	1,361·3

From this it will be seen that the healthiest month during the year was February, and next to it January, the admission-rate per mille being 73·5 and 75·9 respect-

ively. The highest rate was attained in November, when 156 men per 1,000 of strength passed through the hospital. August and September were also very unhealthy, the admission rates being, respectively, 147·9 and 133·6 per 1,000.

Stations.

The fewest admissions into hospital took place at Aden, as the rate at that station was only 839 per 1,000, and the death-rate 9·89. Deesa was also healthy with an admission-rate of 1,044·6 and a death-rate of 10·40, Belgaum had an admission-rate of 1,071·3 and a death-rate of 9·90, Kurrachee had an admission-rate of 1,129·6, whilst the death-rate there amounted to 12·15 per 1,000. Ahmednagar and Kirkee had respectively admission-rates of 1,310·4 and 1,358·2, both below the mean, whilst the death-rate at these stations was 11·78 and 9·33 per mille. Indore had an extremely high rate, 1,862·7, and a death-rate of 29·41 per 1,000. In Ahmedabad the admission-rate was 1,452·3 per 1,000 and the death-rate there was the highest of all the stations, being 30·15 per 1,000. Hyderabad had an admission-rate of 1,600 per mille, but a low death-rate of only 4·94 per 1,000. The highest admission-rate occurred in Bombay, where 2,579·2 men per 1,000 passed through the hospital. The death-rate at this station was, however, only 13 per 1,000. At Baroda the admission-rate was 2,142·8 and the death-rate 27·65 per 1,000. Satara, which was the healthiest station last year, had during 1877 an admission-rate of 1,605·1 and a death-rate of 6·37.

The following table shews the average number of daily sick and the average number of days spent in hospital by each sick man arranged according to stations.

Average Daily Sick per 1,000 of Strength in 1877... ... 57·99
Average Number of days spent in Hospital by each Sick man for 1877 ... ... 21·17

Below the Mean.				Above the Mean.			
No.	Stations.	Average Daily Sick. Ratio per 1,000 of Strength for 1877.	Average Number of days spent in Hospital by each Sick Man.	No.	Stations.	Average Daily Sick. Ratio per 1,000 of Strength for 1877.	Average Number of days spent in Hospital by each Sick Man.
1	Marching ...	10·29	3·76	1	Bombay ...	90·11	32·89
2	Purandhur ...	15·00	5·28	2	Satara ...	84·59	30·87
3	Londi	18·75	6·84	3	Indore ...	77·94	28·45
4	Mount Abu ...	22·60	8·25	4	Baroda ...	73·59	26·86
5	Deesa	34·83	12·71	5	Poona ...	70·80	25·82
6	Aden	35·21	12·85	6	Mhow ...	69·74	25·45
7	Asirgarh ...	42·63	15·57	7	Ahmedabad ...	64·02	23·37
8	Deoláli ...	44·66	16·30	8	Belgaum ...	59·02	21·54
9	Hyderabad ...	50·77	18·53				
10	Ahmednagar ...	51·94	18·96				
11	Kirkee ...	55·47	20·25		*Sanitarium.*		
12	Kurrachee ...	55·57	20·28				
13	Neemuch ...	56·54	20·64				
14	Nusseerabad ...	57·48	20·97	9	Colaba ...	213·33	77·87
				10	Tarragarh ...	103·64	37·83
	Sanitarium.			11	Ghizree ...	83·61	30·52
				12	Khandala ...	67·24	24·54
15	Deoláli ...	48·46	17·89	13	Purandhar ...	59·20	21·61

The troops on the line of march were very healthy, as only 10·29 per mille amongst them were sick, but Bombay, Satara, Indore, and the other five stations above the mean had a very large number of men constantly sick in hospital.

Regiments.

The ratio of admissions into hospital, the average daily sick, the average period of residence in hospital by each sick man, and the death-rate per 1,000 among the European Troops serving in Bombay Presidency during 1877, arranged according to corps and stations, are given in the next series of tables:—

ADMISSIONS.

AVERAGE NUMBER OF ADMISSIONS PER 1,000 OF STRENGTH FOR 1877—1,361·3.

Below the Mean.

No.	Regiments.	Average Strength.	Stations.	Period.	Ratio per 1,000 of Strength for 1877.
1	55th Foot ..	74	Aden (Head-Quarters) Deolali (Detachment.)	1st January to 21st February. 1st January to 12th February	283·8
2	Head-Quarters 6th Brigade Royal Artillery.	7	Colaba ..	1st January to 31st December	428·6
3	Royal Engineers.	43	Kirkee ..	1st January to 31st December	488·4
4	56th Foot ..	526	Kurrachee .. Londi .. .. Marching .. Aden .. .. Hyderabad (Detachment)	1st January to 12th January. 13th January to 24th March. 25th March to 31st March. 1st April to 31st December. 1st January to 13th January.	737·6
5	17-8th R. A. ..	81	Aden .. .. Marching .. Mhow	1st January to 22nd October. 23rd October to 7th November 8th November to 31st Dec.	864·2
6	18-8th do. ..	75	Mhow.. .. Marching .. Aden	1st January to 26th Sept. 27th September to 10th October 11th October to 31st December	973·3
7	2-7th Foot ..	889	Belgaum ..	1st January to 31st December	996·6
8	83rd do. ..	942	Marching .. Kurrachee .. Hyderabad (Detachment).	1st January to 22nd January. 23rd January to 31st Dec. 14th January to 31st Dec.	1,014·9
9	N-1st R. A. ..	159	Ahmednagar .	1st January to 31st December.	1,088·1
10	16-8th do. ..	78	Aden .. .. Marching .. Colaba ..	1st January to 21st October. 22nd October to 1st November. 2nd November to 31st Dec.	1,141·0
11	I-1st do. ..	158	Kurrachee .. Hyderabad ..	January to November. December.	1,158·2
12	2-15th Foot ..	855	Deesa .. .. Mount Abu (Detachment). Ahmedabad (Detachment). Baroda (Detachment).	1st January to 31st Dec.	1,166·1
13	68th do. ..	847	Nusseerabad .. Neemuch (Detachment). Tarngarh do.	1st January to 31st Dec. 14th April to 29th Nov.	1,166·5
14	M-1st R. A. ..	162	Marching .. Kirkee ..	1st January to 18th January. 19th January to 31st December	1,197·5
15	C-2nd do. ..	166	Belgaum ..	1st January to 31st Dec.	1,319·3
16	2-11th Foot ..	570	Poona.. .. .. Khandála (Detachment). Kirkee do. Purandhar (Detachment). Deolali (do.)	15th March to 31st Dec. 2nd April to 2nd June. 1st July to 30th September. 24th March to 31st December 17th October to 31st December	1,343·9

Above the Mean.

No.	Regiments.	Average Strength.	Stations.	Period.	Ratio per 1,000 of Strength for 1877.
1	D-2nd R. A. ..	164	Hyderabad .. Kurrachee ..	1st January to 5th November. 6th November to 31st Dec.	2,658·5
2	15-8th do. ..	81	Colaba .. Marching .. Aden	1st January to 30th September 1st October to 10th October. 11th October to 31st December	2,271·6
3	1-9th do. ..	79	Colaba .. Marching .. Aden	1st January to 30th Sept. 1st October to 10th October . 11th October to 31st December	2,227·8
4	66th Foot ..	872	Ahmednagar . Satara (Detachment).	1st January to 31st Dec.	1,888·8
5	E-2nd R. A. ..	158	Neemuch ..	1st January to 31st December	1,797·5
6	F-2nd do. ..	169	Ahmedabad .. Baroda (Detachment). Marching (Hd. Qrs. & Detachment). Kirkee ..	1st January to 12th Nov. 1st January to 12th Nov. 13th November to 15th Nov. 16th November to 31st Dec.	1,787·0
7	G-2nd do. ..	162	Nusseerabad..	1st January to 31st December	1,771·6
8	E-B. R. H. A ..	162	Mhow .. Indore (Detachment).	1st January to 31st December 28th September to 13th Nov.	1,746·9
9	A-2nd R. A. ..	172	Kirkee .. Marching .. Ahmedabad .. Baroda (Detachment).	1st January to 5th Nov. 6th November to 8th Nov. 9th November to 31st Dec. 7th November to 31st Dec.	1,744·2
10	D-B. R.H. A...	165	Kirkee ..	1st January to 31st December	1,593·9
11	1-2nd Foot ..	805	Poona.. .. Deolali (Detachment). Kirkee do. Belgaum do.	1st January to 31st December 1st January to 31st December 26th March to 31st December 1st January to 31st December	1,588·8
12	19-8th R. A. ..	78	Aden .. .. Marching .. Colaba ..	1st January to 21st October. 22nd October to 1st November. 2nd November to 31st Dec.	1,551·3
13	3rd K. O. Hussars.	418	Mhow.. ..	1st January to 31st December	1,521·5
14	B-2nd R. A. ..	159	Deesa .. .. Ahmedabad (Detachment). Mount Abu (Detachment).	1st January to 31st December 1st January to 23rd October . 20th March to 29th June.	1,478·0
15	2-17th Foot ..	857	Mhow .. .. Indore (Detachment). Assirghar do.	1st January to 31st Dec. 1st January to 17th April.	1,432·9

N. B.—There were no admissions into Hospital during the year among the men belonging to the Head-Quarters 9th Brigade R. A. stationed at Kirkee.

DAILY SICK.

AVERAGE DAILY SICK PER 1,000 OF STRENGTH FOR 1877...57·9

Below the Mean.

Number.	Regiments.	Average Strength.	Stations.	Period.	Ratio per 1,000 of Strength for 1877.
1	Head Quarters 6th Brigade R. A.	7	Kolába ..	1st January to 31st December.	14·3
2	Royal Engineers.	43	Kirkee ..	Ditto ..	20·9
3	17-8th R. A. ..	81	Aden ..	1st January to 22nd October.	33·6
			Marching ..	23rd October to 7th November.	
			Mhow ..	8th November to 31st December.	
4	16-8th R. A. ..	78	Aden ..	1st January to 21st October.	34·9
			Marching ..	22nd October to 1st November.	
			Kolába ..	2nd November to 31st December.	
5	56th Foot ..	526	Kurrachee ..	1st to 12 January.	35·7
			Londi ..	13th January to 24th March.	
			Marching ..	25th to 31st March.	
			Aden ..	1st April to 31st December.	
			Hyderabad (Detachment).	1st to 13th January.	
6	2-15th do. ..	855	Deesa .. Mount Abu (Detachment). Ahmedabad (Detachment). Baroda (Detachment).	1st January to 31st December.	39·1
7	18-8th R. A. ..	75	Mhow ..	1st January to 26th September.	39·3
			Marching ..	27th September to 10th October.	
			Aden ..	11th October to 31st December.	
8	68th Foot ..	847	Nusseerabad .. Neemuch (Detachment).	1st January to 31st December.	40·5
			Tárághur (Detachment).	14th April to 29th November.	
9	I-1st R. A. ..	158	Kurrachee ..	January to November.	41·1
			Hyderabad ..	December ..	
10	N-1st R. A. ..	159	Ahmednagar .	1st January to 31st December.	41·6
11	M-1st R. A. ..	162	Marching ..	1st January to 18th January.	46·5
			Kirkee ..	19th January to 31st December.	
12	93rd Foot ..	942	Marching ..	1st to 22nd January.	47·9
			Kurrachee ..	23rd January to 31st December.	
			Hyderabad (Detachment).	14th do. to do.	
13	2-7th do. ..	889	Belgaum ..	1st do. to do.	51·5
14	19-8th R. A. ..	78	Aden ..	1st January to 21st October.	55·4
			Marching ..	22nd October to 1st November.	
			Kolába ..	2nd November to 31st December.	
15	B-2nd R. A. ..	159	Deesa ..	1st January to 31st December.	55·8
			Ahmedabad (Detachment).	1st January to 23rd October	
			Mount Abu (Detachment).	20th March to 29th June.	
16	2-17th Foot ..	857	Mhow .. Indore (Detachment).	1st January to 31st December.	56·5
			Assirgurh (Detachment).	1st January to 17th April.	

Above the Mean.

Number.	Regiments.	Average Strength.	Stations.	Period.	Ratio per 1,000 of Strength for 1877.
1	3rd K. O. Hussars.	418	Mhow ..	1st January to 31st December.	91·8
2	C-2nd R. A. ..	166	Belgaum ..	Ditto ..	84·1
			Kolába ..	1st January to 30th September.	
3	15-8th do. ..	81	Marching ..	1st to 10th October.	79·7
			Aden ..	11th October to 31st December.	
			Kolába ..	1st January to 30th September.	
4	1-9th do. ..	79	Marching ..	1st to 10th October.	79·0
			Aden ..	11th October to 31st December.	
5	E-2nd do. ..	158	Neemuch ..	1st January to 31st December.	77·3
6	E-B. R. H. A...	162	Mhow .. Indore (Detachment).	Ditto .. 28th September to 13th November.	76·7
			Poona .. Deolali (Detachment).	1st January to 31st December.	
7	1-2nd Foot ..	805	Kirkee do.	26th March to 31st December.	74·5
			Belgaum do.	1st January to 31st December.	
			Ahmedabad ...	1st January to 12th November.	
			Baroda (Detachment).	Ditto.	
8	F-2nd R. A. ..	169	Marching (Head Quarter and Detachment).	13th November to 15th November.	72·2
			Kirkee ..	16th November to 31st December.	
9	D-B. R. H. A....	165	Kirkee ..	1st January to 31st December.	70·2
10	66th Foot ..	872	Ahmednagar Satara (Detachment).	Ditto.	69·4
11	G-2nd R. A. ..	162	Nusseerabad ..	Ditto.	67·9
12	D-2nd do. ..	164	Hyderabad ..	1st January to 5th November.	67·7
			Kurrachee ..	6th November to 31st December.	
13	2-11th Foot ...	570	Poona ..	15th March to 31st December.	64·6
			Khandala (Detachment).	2nd April to 2nd June.	
			Kirkee (do.)..	1st July to 30th September ..	
			Purandhur (Detachment)	24th March to 31st December.	
			Deolali (Detachment).	17th October to 31st December.	
14	A-2nd R. A. ..	172	Kirkee ..	1st January to 5th November.	58·0
			Marching ..	6th to 8th November.	
			Ahmedabad ..	9th November to 31st December.	
			Baroda (Detachment).	7th November to 31st Do.	

DAYS SPENT IN HOSPITAL.

AVERAGE NUMBER OF DAYS SPENT IN HOSPITAL BY EACH SICKMAN FOR 1877—21·17.

BELOW THE MEAN.

No.	Regiments	Average strength.	Stations.	Period.	Number of days spent in Hospital by each sickman
1	Head Quarters 6th. Brigade R.A.	7	Kolába ..	1st January to 31st December.	5·21
2	Royal Engineers.	43	Kirkee ..	Do. do.	7·64
3	17-8 R.A. ..	81	Aden ..	1st January to 22nd October.	12·26
			Marching ..	23rd October to 7th November.	
			Mhow ..	8th November to 31st December.	
4	16-8 do. ..	78	Aden ..	1st January to 21st October.	12·73
			Marching ..	22nd October to 1st November	
			Kolába ..	2nd November to 31st December.	
5	56th Foot. ..	526	Karrachee ..	1st to 12th January.	13·04
			Londi ..	13th January to 24th March.	
			Marching ..	25th to 31st March.	
			Aden ..	1st April to 31st December.	
			Hyderabad (Dett).	1st to 13th January.	
6	2-15 do. ..	855	Deesa .. Mount Abu (Dett). Ahmedabad (Dett). Baroda (do). ..	1st January to 31st December.	14·25
7	18-8 R.A. ..	75	Mhow ..	1st January to 26th September.	14·36
			Marching ..	27th September to 10th October.	
			Aden ..	11th October to 31st December.	
8	68th Foot. ..	847	Nusseerabad .. Neemuch (Dett). Tarragur (do) .	1st January to 31st December.	14·82
				14th April to 29th November.	
9	I-1st R.A. ..	158	Kurrachee .. Hyderabad ..	January to November. December ..	14·99
10	N-1st do. ..	159	Ahmednagar ..	1st January to 31st December.	15·17
11	M-1st do. ..	162	Marching ..	1st to 18th January.	16·99
			Kirkee ..	19th January to 31st December.	
12	83rd Foot. ..	942	Marching .. Kurrachee .. Hyderabad (Dett)	1st to 22nd January. 23rd January to 31st December. 14th January to 31st December.	17·21
13	2-7th do. ..	889	Belgaum ..	1st January to 31st December.	18·78
14	19-8 R.A. ..	73	Aden ..	1st January to 21st October.	20·22
			Marching ..	22nd October to 1st November	
			Kolába ..	2nd November to 31st December.	
15	B-2nd do. ..	159	Deesa .. Ahmedabad (Dett). Mount Abu (Dett).	1st January to 31st December. 1st January to 23rd October. 20th March to 29th June.	20·36
16	2-17th Foot. ..	857	Mhow .. Indore .. Assirghur ..	1st January to 31st December. 1st January to 17th April.	20·61

ABOVE THE MEAN.

No.	Regiments.	Average strength.	Stations.	Period.	Number of days spent in Hospital by each sickman
1	3rd K. O. Hussars.	418	Mhow ..	1st January to 31st December.	33·51
2	C-2nd R. A. ..	166	Belgaum ..	Do. do.	30·69
3	15-8th ,, ..	81	Kolába ..	1st January to 30th September.	29·11
			Marching ..	1st to 10th October.	
			Aden ..	11th October to 31st December.	
4	1-9th ,, ..	79	Kolába ..	1st January to 30th September.	28·83
			Marching ..	1st to 10th October.	
			Aden ..	11th October to 31st December.	
5	E-2nd ,, ..	158	Neemuch ..	1st January to 31st December.	28·23
6	E-B. R. H. A...	162	Mhow .. Indore (Dett) .	Do. .. 28th September to 13th November.	28·01
7	1-2nd Foot. ..	805	Poona .. Deolali (Dett). Kirkee (Dett).	1st January to 31st December.	27·19
			Belgaum do.	26th March to 31st December. 1st January to 31st December.	
8	F-2nd R. A. ..	169	Ahmedabad .. Baroda (Dett). Marching (Hd. Quarters and Dett). Kirkee ..	1st January to 12th November. 13th to 15th November. 16th November to 31st December.	26·37
9	D-B. R. H. A...	165	Kirkee ..	1st January to 31st December.	25·61
10	66th Foot. ..	872	Ahmednagar . Satara (Dett) .	1st January to 31st December.	25·34
11	G-2nd R. A. ..	162	Nusserabad ..	Do. do.	24·78
12	D-2nd ,, ..	164	Hyderabad .. Kurrachee ..	1st January to 5th November 6th November to 31st December.	24·66
13	2-11th Foot. ..	570	Poona .. Khandala (Dett) Kirkee (do.) Poorundhar (Dett) Deolali (Dett.)	15th March to 31st December. 2nd April to 2nd June. 1st July to 30th September. 24th March to 31st December. 17th October to 31st December.	23·59
14	A-2nd R.A. ..	172	Kirkee .. Marching .. Ahmedabad .. Baroda (Dett.)	1st January to 5th November. 6th to 8th November. 9th November to 31st December. 7th November to 31st December.	21·18

DEATHS.

AVERAGE NUMBER OF DEATHS PER 1,000 OF STRENGTH FOR 1877...11·63.

Below the Mean.						Above the Mean.					
Number.	Regiments.	Average Strength.	Stations.	Period.	Ratio per 1,000 of Strength for 1877.	Number.	Regiments.	Average Strength.	Stations.	Period.	Ratio per 1,000 of Strength for 1877.
1	D-2nd R. A. ..	164	Hyderabad ..	1st January to 5th November.	6·10	1	15-8th R. A. ..	81	Kolába ..	1st January to 30th September.	37·04
			Kurrachee ..	6th November to 31st December.					Marching ..	1st to 10th October.	
									Aden	11th October to 31st December.	
2	B-2nd do. ..	159	Deesa	1st January to 31st December.	6·29	2	18-8th do. ..	75	Mhow.. ..	1st January to 26th September.	26·67
			Ahmedabad (Detachment.)	1st January to 23rd October.					Marching ..	27th September to 10th October.	
			Mount Abu (Detachment.)	20th March to 29th June.					Aden	11th October to 31st December.	
3	2-17th Foot ..	857	Mhow	1st January to 31st December.	8·17	3	Royal Engineers.	43	Kirkee ..	1st January to 31st December.	23·26
			Indore (Detachment.)						Poona ..	Do. ..	
			Asirgurh (Detachment.)	1st January to 17th April.					Deolali (Detachment.)	Do. ..	
4	83rd do. ..	942	Marching ..	1st to 22nd January.	8·49	4	1-2nd Foot ..	805	Kirkee (Detachment.)	26th March to 31st December.	22·38
			Kurrachee ..	23rd January to 31st December.					Belgaum (Detachment.)	1st January to 31st December.	
			Hyderabad (Detachment.)	14th January to 31st December.					Deesa	Do. ..	
5	66th do. ..	872	Ahmednagar ..	1st January to 31st December.	9·17	5	2-15th do. ..	855	Mount Abu (Detachment.)		21·05
			Satara (Detachment.)						Ahmedabad (Detachment.)		
									Baroda (Detachment.)		
6	2-7th do. ..	889	Belgaum ..	1st January to 31st December.	10·13				Ahmedabad ..	1st January to 12th November.	
			Poona	15th March to 31st December.					Baroda (Detachment.)	Do. ..	
			Khandála (Detachment.)	2nd April to 2nd June.		6	F-2nd R. A. ..	169	Marching (HeadQuarters and Detachment.)	13th November to 15th November.	17·75
7	2-11th do. ..	570	Kirkee (Detachment.)	1st July to 30th September.	10·53				Kirkee ..	16th November to 31st December.	
			Purandhar. (Detachment.)	24th March to 31st December.					Kurrachee ..	1st to 12th January.	13·31
			Deolali (Detachment.)	17th October to 31st December.					Londi	13th January to 24th March.	
			Kirkee ..	1st January to 5th November.		7	56th Foot ..	526	Marching ..	25th March to 31st March,	
			Marching ..	6th November to 8th November.					Aden	1st April to 31st December.	
8	A-2nd R. A. ..	172	Ahmedabad ..	9th November to 31st December.	11·62				Hyderabad(Detachment.)	1st January to 13th January.	12·82
			Baroda (Detachment.)	7th November to 31st December.					Aden	1st January to 21st October.	
						8	19-8th R. A. ..	78	Marching ..	22nd October to 1st November.	
									Kolába ..	2nd November to 31st December.	
						9	I-1st do. ..	158	Kurrachee ..	January to November.	12·66
									Hyderabad ..	December.	
									Kolába ..	1st January to 30th September.	
						10	1-9th do. ..	79	Marching ..	1st October to 10th October.	12·66
									Aden	11th October to 31st December.	
						11	N-1st R. A. ..	159	Ahmednagar..	1st January to 31st December.	12·58
						12	G-2nd do. ..	162	Nusseerabad..	Do. ..	12·35
						13	D-B.R. H.A. ..	165	Kirkee ..	Do. ..	12·12
						14	C-2nd R.A. ..	166	Belgaum ..	Do. ..	12·05
						15	3rd K. O. Hussars.	418	Mhow.. ..	Do. ..	11·96
									Nusseerabad ..		
									Neemuch (Detachment).	Do. ..	
						16	68th Foot ..	847	Taraghar (Detachment.)	14th April to 29th November.	11·81

There were no deaths during the year in the following corps :—

No.	Regiment.	Average Strength.	Stations.
1	E.B. R. H. A.	162	Mhow and Indore.
2	Head Quarters 6th Brigade R. A.	7	Colaba.
3	Do. 9th do.	6	Kirkee.
4	M. 1st R. A.	162	Do.
5	R-2nd R. A.	158	Neemuch.
6	16-8th R. A.	78	Aden and Colaba.
7	17-8th R. A.	81	Aden and Mhow.
8	55th Foot	74	Aden.

Admissions into Hospital. Ratio according to Corps.

The head-quarters of the 9th Brigade Royal Artillery stationed at Kirkee, consisted of a strength of only 6 men, none of whom, as in 1876, were admitted into hospital during the year. This corps consequently heads the list. The 55th Regiment was only on the strength of the Bombay Army from 1st January to 20th February. Among the Royal Engineers quartered at Kirkee the admission rate was 488 per 1,000. The highest admission rate is found among the D/2, late D/4, Royal Artillery, which was stationed during the year at Hyderabad and Kurrachee. The admission rate among the men of this battery was the very high one of 2,658·5 per 1,000, though this is somewhat less than the corresponding ratio for 1876, which was 2,938·5 per 1,000. The 15/8, late 1/6th, Royal Artillery, which was on the line of march and quartered at Colaba and Aden during the year, had the very high admission rate of 2,271·6 against 1,461·5 in 1876 ; whilst in the 1/9th, late 6/6th Royal Artillery stationed at Colaba and Aden, the admission rate was 2,227·8 against 2,341·8 per 1,000 in 1876. The 66th Regiment stationed at Ahmednagar and its Detachment at Satara had an admission rate of 1,888 against 1,496 per 1,000 in 1876.

Daily sick. Residence in Hospital.

The 3rd King's Own Hussars stationed at Mhow, heads the list. Ninety-one men per 1,000 of its average strength were constantly sick in hospital; whilst the average number of days each sick man remained in hospital was 33·5. The next highest rate is found in C/2, late C/4 Royal Artillery quartered at Belgaum, with a daily sick rate of 84, and an average residence in hospital of 30 days. The head-quarters 6th Brigade Royal Artillery quartered at Colaba, had only a daily sick rate of 14 per 1,000, and the Royal Engineers 20.

Deaths according to Age.

The annexed statement shows the total strength of the European Army serving in the Bombay Presidency as it stood on the 1st July 1877. This is slightly higher than the average strength of the year as deduced from the weekly returns. The deaths from different causes at different periods of life and the ratio of mortality for each period are likewise shown, and it will be remarked that the highest ratio of deaths is found, as might be expected, among soldiers who have passed their fortieth birth-day, the ratio of liability per cent. for them being 38·55 against 25·07 in 1876.

Regarding the other periods the maximum ratio (11·78) is found among men of between 28 and 29 years of age, and the next highest ratio (11·35) occurred to men between 35 and under 40. The young soldiers under 20 years of age in 1877 occupy the lowest place among the rates of liability. In 1876 the ratio for the period was as high as 18·25 per cent., and was due to the fact that during that year 24·39 per 1,000 of their strength had died from enteric fever.

Distribution according to Age of the Strength on 1st July 1877.

Total Strength on 1st July 1877	Under 20.	20 and under 22.	22 and under 24.	24 and under 26.	26 and under 28.	28 and under 30.	30 and under 35.	35 and under 40.	Over 40.
10,134	247	1,268	1,442	2,280	1,482	816	1,184	1,108	307

Deaths for 1877 and the Death-rates at different Ages.

	Number of Deaths at Different Ages.									Ratio per 1,000 of the Strengths above stated.								Ratio of Liability in Percentages.								
	Under 20.	20 and under 22.	22 and under 24.	24 and under 26.	26 and under 28.	28 and under 30.	30 and under 35.	35 and under 40.	Over 40.	Under 20.	20 and under 22.	22 and under 24.	24 and under 26.	26 and under 28.	28 and under 30.	30 and under 35.	35 and under 40.	Over 40.	Under 20.	20 and under 22.	22 and under 24.	24 and under 26.	26 and under 28.	28 and under 30.	30 and under 35.	35 and under 40.	Over 40.	Total.
Cholera	..	2	..	..	2	1	2	3	..	..	1·58	..	..	1·35	1·23	1·69	2·71	..	..	18·47	..	..	15·77	14·37	19·74	31·65	..	100
Remittent and continued fevers	..	..	..	2	1	..	1	..	..	..	..	..	0·88	0·67	..	0·84	..	..	..	..	..	36·82	28·03	..	35·15	..	..	100
Enteric fever	..	4	1	4	3	1	1	1	..	..	3·15	0·69	1·75	2·03	1·23	0·84	0·90	..	..	29·75	6·52	16·58	10·17	11·61	7·93	8·49	..	100
Apoplexy	..	..	..	..	..	2	1	1	1	..	..	..	..	..	2·45	0·84	0·90	3·26	..	..	..	..	..	32·89	11·28	12·08	43·75	100
Dysentery and diarrhœa..	..	1	2	..	..	1	..	1	2	..	0·79	1·39	..	..	1·23	..	0·90	6·51	..	7·30	12·85	..	..	11·37	..	8·31	60·17	100
Hepatitis	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	3·26	..	..	..	..	..	..	..	..	100·00	100
Phthisis pulmonalis ..	..	..	1	2	2	1	1	..	..	..	..	0·69	0·88	1·35	1·23	0·84	..	..	..	..	13·83	17·64	27·05	24·64	16·84	..	..	100
Heart diseases	..	..	..	..	1	..	2	..	1	..	..	..	..	0·67	..	1·69	..	3·26	..	..	..	..	11·92	..	30·07	..	58·01	100
All other causes	1	2	6	7	10	7	9	11	11	4·05	1·58	4·16	3·07	6·75	8·57	7·60	9·93	35·88	4·97	1·94	5·10	3·76	8·28	10·51	9·32	12·18	43·94	100
All causes	1	9	10	15	19	13	17	17	16	4·05	7·10	6·93	6·58	12·82	15·93	14·35	15·34	52·12	2·99	5·25	5·12	4·87	9·48	11·78	10·61	11·85	38·55	100
All causes, excluding cholera	..	7	10	15	17	12	15	14	16	4·05	5·52	6·93	6·58	11·47	14·70	12·66	12·63	52·12	3·20	4·35	5·47	5·19	9·06	11·61	10·00	9·07	41·15	100

The principal diseases as they occurred in regiments and stations must now be briefly noticed.

Cholera.

Of the 15 cases of cholera which occurred during the year 1877, 10 proved fatal, equal to a rate of 0·99 per 1,000 of strength. In 1876 there were 5 men attacked, 2 of whom died. The disease was, in 1877, extremely virulent. Of the 15 cases, 8 occurred in Poona, 5 of which proved fatal. The first case at this station took place among the details in the month of January. The man, however, recovered. In June a fatal case occurred among the A/4th R.A. at Kirkee. In July 2 men of the 2/11th Foot and a man of the 1/2nd Foot and another man attached to the details were attacked, of them 3 died. In August two men of the 2/11th and another soldier of the 1/2nd Foot were seized with cholera, 2 of whom died.

In June a fatal case was reported among the 2/7th Foot at Belgaum. At Satara, a man belonging to the detachment of the 66th Foot, was attacked by cholera in August, but recovered. Two cases occurred in Ahmednagar in the 66th Foot; one in September, which proved fatal, and one in October, which recovered. Of the remaining two cases, one took place in the 18/8th R. A. at Aden in October, and the other among the Detachment 2/15th Foot at Baroda, in December: both terminated fatally.

Small-pox.

During the year 18 cases of small-pox against 11 in the preceding year were admitted into hospital. Of these 6 cases occurred at Kurrachee, five in the 56th Regiment in January, and 1 in B/9th R. A. in February, 3 took place in Poona in January, 2 in the 1/2nd Foot, and 1 among the details. In February 3 cases occurred; one in D/4th R. A. at Hyderabad, one in the 56th Foot at Londi, and one in the 66th Foot at Ahmednagar. In March there were 2 fresh cases in the 66th Foot at Ahmednagar. In the Detachment of the 2/15th Foot at Baroda there were 2 admissions from small-pox, one of which occurred in April, and the other in June. In the D/C R. H. A. quartered at Kirkee there was 1 admission in April; and in May there was also one admission in the 56th Foot, which was then at Aden.

None of the cases of small-pox proved fatal.

Enteric Fever.

Although enteric fever was less prevalent in 1877 than in 1876, yet it still occupies a prominent place among the diseases which contributed to the mortality of the European Troops. The total admissions from this cause in 1877 were 22 against 38 of the preceding year. Of these 15 or a percentage to treated of 68·19, proved fatal. In 1876, the percentage was only 42·11. The admission and death rates per 1,000 were 2·2 and 1·49 respectively, against 3·8 and 1·58 of the preceding year. Admissions for this disease took place in each month of the year except December, and occurred at 10 different stations in the Bombay Presidency. The highest number was at Kurrachee where 6 men were admitted, 4 of whom died. There were 4 admissions and 1 death at Mhow and 3 admissions at Belgaum, all of which terminated fatally. At Baroda and Kirkee respectively there were 2 fatal cases. From Ahmednagar 2 cases were reported, both of which recovered.

The ratio of admissions and deaths to strength at each station during 1877 and 1876 are given in the following table:—

Stations.	1877. Strength.	1877. Ratio per 1,000 of Strength. Admissions.	1877. Ratio per 1,000 of Strength. Deaths.	Stations.	1876. Strength.	1876. Ratio per 1,000 of Strength. Admissions.	1876. Ratio per 1,000 of Strength. Deaths.
Ahmedabad	119	5·0	5·02	Poona...	1,510	6·6	2·65
Deesa	673	1·5	1·49	Baroda	212	14·1	4·71
Baroda...	217	9·2	9·21	Ahmedabad	263	7·6	3·80
Kurrachee	741	8·1	5·40	Mhow...	1,153	6·9	1·73
Ahmednagar	509	3·9	...	Neemuch	410	17·1	17·07
Kirkee...	536	3·7	3·73	Nusseerabad	640	4·7	...
Belgaum	1,010	3·0	2·98	Asirgurh	44	22·7	...
Mhow	1,309	3·1	0·77	Hyderabad	360	2·8	...
Asirgurh	34	...	29·41	Aden	720	2·8	1·39
Sanitarium, Purandhar.	113	8·8	...	Sanitarium, Tárágurh..	44	22·7	...

Malarial Fevers.

Four thousand five hundred and fifty admissions into hospital were caused by malarial fevers during the year, against 4,860 in 1876. The rates of admissions per 1,000 were 452·2, against 480·4 in 1876. The mortality from this cause was, as usual, very small, being only 0·59 per 1,000 against 0·76—the mean death rate in the preceding 5 years. The monthly distribution of these fevers per 1,000 of strength is shown in the next table :—

Malarial Fevers.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Intermittent Fever ...	19·5	13·0	18·6	15·9	23·2	30·8	25·2	48·3	46·9	45·1	57·1	31·5	374·7
Remittent do. ...	1·0	0·7	1·0	0·9	0·4	2·2	1·3	2·3	2·9	1·6	2·9	3·1	20·2
Continued do. ...	2·8	2·5	3·5	5·8	4·5	7·7	4·8	7·5	5·3	4·1	5·5	3·0	57·3
Total ...	23·3	16·2	23·1	22·6	28·1	40·7	31·3	58·1	55·1	50·8	65·5	37·6	452·2

By far the largest number of admissions was caused by Ague, the annual rate being 374·7 per mille. This is less than the rate for 1876 by 19·2 per 1,000. The mean ratio for each month was 31·2; the rate began to rise in August, and continued high till the end of the year, the maximum being reached in November, when it amounted to 57·1. In the corresponding month of 1876 it was 58·3. The minimum for both years occurred in February, when the ratios were 13· and 18·8 respectively.

The admissions from remittent fever were also less in 1877 than in the preceding year, the ratios being 20·2 and 27·2 per 1,000 respectively. The highest ratio 3·1 was recorded in December and the lowest in May. From continued fevers the total admissions amounted to 57·3 against 59·3 per 1,000 in 1876. The maximum 7·7 per mille was reached in June, and the minimum 2·5 took place in February.

The stations in which malarial fevers were most prevalent are shewn in the next table :—

	Stations.	Bombay.	Hyderabad.	Ahmedabad.	Poona.	Baroda.	Neemuch.	Satara.	Karrachee.	Mhow.	Ahmednagar.	Kirkee.	Deolálí.	Deesa.	Belgaum.	Mount Abu.
Admissions.	Mean for 5 years	837·8	763·6	631·6	455·4	447·0	934·7	262·5	419·2	544·7	298·9	308·8	56·6	619·7	155·6	1,131·9
	Ratio per 1,000 of strength for 1877...	1,648·6	597·5	593·0	519·1	502·3	489·9	471·3	452·1	391·9	387·0	384·3	327·6	325·4	318·8	315·1
Deaths.	Mean for 5 years	2·05	2·60	...	1·47	7·58	2·34	...	...	0·77	...	...	...	1·37	...	...
	Ratio per 1,000 of strength for 1877...	2·17	...	...	1·47	...	...	...	...	0·76	1·96	...	...	...	...	...

	Stations.	Nusseerabad.	Indore.	Aden.	Loudi.	Marching.	Purandhar.	Asirgurh.	Sanitaria. Ghizree.	Purandhar.	Marching.	Khandala.	Tárágurh.	Deolálí.	Colaba.	Tithal.
Admissions.	Mean for 5 years	474·7	500·0	296·3	...	291·4	142·9	466·7	409·1	534·5	166·7	272·7	583·3	43·5	600·0	142·9
	Ratio per 1,000 of strength for 1877...	279·1	205·9	195·0	142·8	64·7	...	...	1277·8	557·5	500·0	413·8	363·6	230·8	...	...
Deaths.	Mean for 5 years	1·63	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Ratio per 1,000 of strength for 1877...	...	...	...	...	...	...	...	277·8	...	...	...	...	...	...	...

Apoplexy.

Five cases of apoplexy took place among the European Troops during the year: 2 of these occurred out of hospital, 1 in the month of March in the 1/2nd Foot at Poona, and the other in May in the G/4th R. A. at Nusseerabad. Of the remaining 3, 1 occurred in February at Baroda in the 2/15th Foot: the man had originally been admitted into hospital suffering with dyspepsia, but was attacked, whilst in hospital, with apoplexy and died suddenly; another took place in May in the Detachment of the 1/2nd Foot at Khandala; and the third occurred in November in the 1/9th R. A. at Aden.

The admission and death-rate for this class of disease were 0·2 and 0·50 per 1,000 respectively against 0·4 and 0·20 for the preceding year.

Dysentery and Diarrhœa.

Dysentery and diarrhœa account for 83·5 admissions per 1,000 of strength: this is an increase of 8 per mille over the rate of 1876. The rate of mortality is, however, lower than it was during the preceding year by 0·69 against 0·89. The following stations suffered most severely from these diseases :—Khandala with an admission rate of 551·7 per 1,000 of strength, Poona with 162·5, Baroda with 133·6, Asirgurh with 117·6, Belgaum with 110·9, Ahmednagar with 102·2, Nusseerabad with 90·3. One death took place at Bombay, 3 at Poona, 1 at Kirkee, 1 at Belgaum, and 1 at Mhow.

Delirium Tremens.

There were 51 admissions from delirium tremens in 1877 against 48 in 1876. One case terminated fatally. The ratio of admissions to strength was 5·7, whilst the death-rate was 0·10 per 1,000.

The highest admission rate, 39·2 per mille, occurred at Indore. Deoláli returns 17·2, Deesa 13·4, Mount Abu 13·7, Hyderabad and Kirkee each 7·4, Belgaum 6·9, and Nusseerabad 6·6 admissions per 1,000. A soldier of the 2/15th Foot, quartered at Baroda, died from this disease.

Hepatitis.

306 men were admittted into hospital suffering from hepatitis during the year. The admission rate for the year was 30·4 against 40·1 for 1876. The disease was most prevalent at the hill sanitarium Purandhar, where the rate was the very high one of 100 per 1,000. High admission rates are also observed to have taken place at Mhow, Deoláli and Nusseerabad, where they were 68·0, 51·7 and 47·6 respectively. At Poona the admission rate was 36·8; at Bombay it was 34·7; at Kirkee, 29·8; at Ahmednagar, 23·6, and at Deesa, 22·3. As usual, the station of Belgaum had a very low admission rate from this class of diseases, being only 4·9 per 1,000. The stations at which higher admission rates prevailed during 1877, as compared with 1876, were the following:—Deoláli with an increased rate of 26·7 per 1,000, Aden with one of 8·7, Poona with 18·3, Purandhar with 58·3, and Nusseerabad with 21·0. Only one death from this cause took place during the year, which occurred among 2/15th Foot at Deesa, the death rate being equal to 0·10 against 0·20 per 1,000 in 1876.

Venereal Diseases.

The next statement shows the number of admissions from venereal diseases in the last 7 years among the European Troops in the Bombay Presidency:—

Admissions per 1,000 *of strength.*

1871	1872	1873	1874	1875	1876	1877
174	155	181	171	174	179	196

It will be thus seen that the admissions from this cause during 1877 exceed those during any of the previous 6 years. By Divisions the disease was thus distributed:—

Ratio per 1,000 *of strength.*

Bombay District.	Northern Division.	Sind District.	Aden Brigade.	Poona Division.	Belgaum District.	Mhow Division.
208	164	134	90	265	239	184

The maximum rate 265 per 1,000 was returned from the Poona Division, and the minimum 134 per mille from Sind. Each of these ratios is, however, higher than the corresponding ones for 1876, which were 202 and 86 respectively. Bombay also shows a higher rate than last year, being 208 against 163.

In the following stations venereal diseases prevailed to a great extent during the year:—At Mount Abu the admission rate was 219·2 per 1,000 against 67·5 of the preceding year, whilst at Indore the admission rate exceeded that of the previous year by 75·7 per 1,000, and at Asirgurh by 98·9. In Satara a considerable decrease took place in the rate, as only 38·2 men in 1877 against 272·7 per 1,000 in 1876 were admitted for these diseases. A decrease is also observed in Neemuch, Baroda and Aden.

Officers.

The average strength on the 1st July 1877 of the Officers belonging to British Regiments was 395. 225 Officers, equal to a rate of 569 per 1,000, were admitted into sick quarters during the year. The principal causes of admissions into the sick list are shown in the following table :—

	Causes.	Number of Admissions.	Ratio per 1,000 of Strength.
1	Injuries	30	75·9
2	Intermittent fever	29	73·4
3	Remittent and continued fevers	23	58·2
4	Diarrhœa	18	45·6
5	Abscess and ulcer	17	43·0
6	General debility	6	15·2
7	Eye diseases	5	12·7
8	Dysentery	4	10·1
9	Hepatitis	4	10·1
10	Respiratory Diseases	4	10·1
	Total of these 10 causes...	140	354·4
	Total of all causes...	225	569·6

Besides the above causes, 2 Officers, or 5·1 per 1,000 of average strength, were admitted for sun-stroke.

Only 3 deaths, equal to a rate of 7·59 per 1,000 of strength, took place during the year ; 2 of these occurred out of sick quarters. One Officer belonging to the 2/11th Foot having been drowned at Poona, and the other, an Officer of the 68th Foot, died at Nusseerabad from wounds received from a tiger. The third belonged to the 9th Brigade R. A., and died at Kirkee from Bright's disease.

Women.

The average annual strength of European women belonging to British Regiments during the year was 1,056, of whom 31 against 17 in 1876, or 29·36 against 15·11 per 1,000, died during the course of the year.

Admissions into Hospital.

1,251 women were admitted into hospital in 1877 against 1,180 in the previous year, the ratio being 1,184·7 against 1,048 per 1,000 in 1876.

The principal causes of admissions into hospital among the women were the following :—

No.	Causes.	Number of Admissions.	Ratio per 1,000 of Strength.	Died per every 100 treated.
1	Debility and anæmia	307	290·7	.....
2	Child-birth	279	264·2	.....
3	Intermittent fever	173	163·8	.....
4	Diarrhœa	73	69·1	2·74
5	Remittent and continued fevers ...	71	67·2	.....
6	Eye diseases	29	27·5	.....
7	Dysentery	23	21·8	8·70
8	Respiratory diseases	18	17·0	.....
9	Abscess and ulcer	16	15·2	.....
10	Injuries	6	5·7	.....
	Total of these 10 causes ...	995	942·2	.....
	Total of all causes ...	1,251	1,184·7	.....

Only one case of small-pox was recorded during the year, which, however, terminated favourably. This occurred among the women of the 1-2nd Foot at Poona. Two cases of enteric fever among the women of the 2-7th Foot at Belgaum were reported in 1877. Recovery followed in each case.

The number of deaths, their causes, and the stations in which they occurred, are tabulated in the next table :—

Causes.	Cholera.	Apoplexy.	Dysentery.	Diarrhœa.	Hepatitis.	Phthisis Pulmonalis.	Heart Diseases.	All other Causes.	Total.
Number of Deaths.	7	1	2	2	2	3	1	13	31
Stations at which deaths occurred.	Poona. Ahmednagar. Belgaum. Deesa. Neemuch.	Poona.	Poona. Bombay.	Belgaum.	Kirkee. Tárághar.	Aden. Tárághar.	Mhow.	Poona. Kirkee. Ahmednagar. Deesa. Mhow. Nusseerabad. Kurrachee. Aden.	Presidency.

By Divisions.

Ten deaths, equal to a ratio of 29·94, took place in the Poona Division; 6, or 25·21 per mille, died in the Mhow Division; 2, or 13·89 per 1,000, in the Northern Division; 1, or 17·24 per mille, in the Bombay Districts; 4, equal to a ratio of 32·79 per 1,000 of strength, died at Belgaum; 1, or 8·40 per mille, in Sind; 5, equal to a rate of 60·98 per 1,000, died in the Aden Brigade; whilst 2, or 285·71, died at Tárághar, the Hill Sanitarium near Nusseerabad.

Cholera.

Seven women died from cholera. Two deaths took place at Poona, one woman belonged to the 1-2nd Foot, and the other to the 2-11th Foot at Poona. One fatal case among the women from cholera is reported to have taken place in the 66th Regiment at Ahmednagar, 2 at Belgaum in the 2-7th Foot, 1 at Neemuch in E-2nd R. A., and 1 at Deesa in 2-15th Foot. Only one woman died from cholera during the year 1876.

Children.

The average strength of the children in European Regiments during the year was 2,227, and 113 deaths, or 50·74 per 1,000 of strength, occurred. This rate is lower than the mean of the previous 5 years, but is 5·95 per 1,000 higher than in 1876.

During the year, 1,431 children, or 642·7 per 1,000 of strength, were admitted into hospital.

Admissions into Hospital.

The principal causes of admissions were as follows :—

No.	Causes.	Number of Admissions.	Ratio per 1,000 of Strength.	Died out of every 100 treated.
1	Intermittent Fever	228	102·4	0·88
2	Anæmia and Debility	201	90·3	5·97
3	Diarrhœa	177	79·5	17·51
4	Remittent and Continued Fevers ...	93	41·8	6·45
5	Respiratory Diseases	59	26·5	8·47
6	Eye Diseases	26	11·7	.....
7	Convulsions	24	10·8	66·67
8	Injuries	24	10·8	4·17
9	Abscess and Ulcer	17	7·6	.....
10	Hooping Cough	7	3·1	.....
	Total of these ten causes ...	856	384·4	.....
	Total of all causes ...	1,431	642·7	.....

Fourteen cases of small-pox occurred during the year, but all recovered; and there were 23 children laid up with measles, all of whom did well. No case of enteric fever among the children was reported during the year.

Deaths.

The causes of deaths, arranged according to stations, were as follows:—

Stations.	Average Annual Strength.	Cholera.	Fever, Intermittent.	Fever, Remittent and Continued.	Convulsions.	Meningitis.	Tabes Mesenterica.	Apoplexy.	Diarrhœa.	Anæmia.	Bronchitis and Pneumonia.	All other Causes.	Total.	Died per 1,000 of Strength.
Poona	239	2	1	4	2	...	...	...	10	...	...	2	21	87·87
Kirkee	191	...	1	...	3	...	...	...	1	...	1	1	7	36·65
Ahmednagar	129	1	...	...	...	1	1	...	...	1	...	2	6	46·52
Ahmedabad	29	...	...	...	1	...	...	...	...	...	...	...	1	34·48
Deesa	255	...	...	...	2	...	...	...	7	...	...	5	14	54·90
Mhow	275	...	...	...	1	...	...	...	4	...	1	5	11	40·00
Indore	4	...	...	...	1	...	...	...	...	...	...	...	1	250·00
Nusseerabad	136	...	...	1	...	1	1	1	1	...	...	1	6	44·12
Belgaum	310	...	...	1	2	...	...	...	6	...	1	11	21	67·74
Bombay	64	...	...	...	...	...	...	...	2	...	2	4	8	125·00
Kurrachee	186	...	...	...	...	...	...	...	...	...	...	2	2	10·75
Hyderabad	76	...	...	...	1	...	...	...	...	...	...	5	6	78·95
Aden	178	...	...	...	2	...	2	...	...	...	...	3	7	39·33
Sanitaria, &c.														
Kolába	17	...	...	...	...	...	...	...	...	...	...	1	1	58·82
Purandhar	15	...	...	...	1	...	...	...	...	...	...	...	1	66·67
Presidency		3	2	6	16	2	4	1	31	1	5	42	113	50.74

Three fatal cases of cholera occurred during the year among the children: of these 2 took place at Poona, 1 in 1/2nd Foot, and the other in 2/11th Foot; the 3rd death took place at Ahmednagar in the 66th Foot.

Extracts from the Annual Cantonment Reports by Medical Officers.

POONA DIVISION OF THE ARMY.

POONA.

Garrison.

The European Troops quartered at this Station during the year were the 1-2nd Queen's and the 2-11th Regiment which arrived from England on the 14th March 1877. The former regiment occupied the Ghorpuri Barracks and the latter the Right Flank Lines at Wanowree.

Sickness and Mortality.

The following table shows the sickness and mortality in each regiment during the year:—

Corps.	Average Strength.	Average Number Daily Sick.	No. Daily Sick per 1,000 of Strength.	No. of Deaths.	Died per 1,000 of Strength.	Causes of Deaths in Hospital.					Causes of Admissions.																
						Cholera.	Fever Intermittent.	Dysentery.	Diarrhœa.	All other Causes.	Died out of Hospital.	Cholera.	Small-pox.	Fever, Intermittent.	Fever, Remitent.	Fever, Continued.	Delirium Tremens.	Dysentery.	Diarrhœa.	Hepatitis.	Spleen Diseases.	Respiratory Diseases.	Phthisis Pulmonalis.	Scurvy.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer.	Wounds & Accidents.	All other Causes.	Total.
1/2nd Queen's.	729	56·35	77·30	15	20·58	2	1	1	2	7	2	2	2	439	4	7	6	51	90	41	12	34	5	2	26	140	13	43	89	127	1,132
												Admitted per 1,000 of Strength.																			
												2·8	2·8	670·7	5·5	9·6	8·2	70·0	123·5	56·2	16·4	46·6	6·9	2·8	34·3	192·0	17·8	59·0	53·5	174·2	1,552·8
2/11th Foot.	596	36·52	61·23	5	8·39	3	...	...	...	1	1	4	..	38	..	142	..	10	42	..	..	31	..	..	16	185	13	24	45	165	713
												Admitted per 1,000 of Strength.																			
												6·7	..	60·4	..	238·3	..	16·8	70·5	..	..	52·0	..	..	26·8	310·4	21·8	40·3	75·5	276·8	1,196·3

General Health.

The general health of the 1-2nd Regiment was tolerably good, although many of the men were very much broken down in health by frequent attacks of fever (ague). The number of admissions into hospital during 1877 was 1,132, whilst the number of deaths was 15. Two men were admitted for small-pox, both of whom recovered.

The health of the 2-11th Foot is reported to have been good during the year. The principal diseases were fevers and venereal diseases.

Invaliding.

The following table shows the number of men invalided :—

Corps.	For change of Climate	For Discharge.	Total.	Ratio of Invaliding per 1,000 of Strength.		
				For Change.	For Discharge.	Total
1-2nd Queen's	51	3	54	69·96	4·12	74·08
2-11th Foot	10	6	16	16·78	10·06	26·84

In the 2nd Queen's, malarial fevers, with their concomitant results in the form of hepatitis, splenitis, &c., causing general debility, and too long residence in India, are stated to be almost the sole causes of invaliding, though no doubt too much drinking and particularly excessive smoking aid in this direction, but to what extent it is impossible to say.

Women and Children, 1-2nd Queen's.

102 women out of an average strength of 68 were admitted during the year among the 1-2nd Queen's. Of these 4 died, one from cholera and one from dysentery, and 2 from other causes; whilst 143 children out of an average strength of 172 were admitted. Of these 12 died, 1 death being ascribed to cholera, 5 to malarial fevers, 4 to diarrhœa, and 2 to other causes.

Of the above a woman and 14 children were admitted with small-pox, 20 women and 52 children were admitted with malarial fevers. Dysentery caused the admission of 4 women and 4 children, and for diarrhœa 3 women and 29 children were admitted into hospital. 15 women were confined during the year.

2-11th Foot.

The total admissions among the women attached to the 2-11th Foot were 65, the average strength being 55. Two deaths, 1 being from cholera, occurred. Among the admissions, 25 women came into hospital for child-birth. Among the children of the regiment there were 45 admissions and 9 deaths out of an average strength of 76. 1 death took place from cholera, 2 from convulsions, and 6 from diarrhœa.

As the barracks were fully reported upon in last year's report, there is no necessity to recapitulate the details concerning them. Macnamara filters have been introduced into the hospital barracks and patcheries, and are most favourably reported on by the Medical Officers.

Gymnasium.

676 men of the 1-2nd Queen's and 433 men of the 2-11th Foot passed through the gymnasium during the year. In every instance marked benefit to the health of the men was observed, especially in the case of the younger recruits.

Infectious Disease.

14 children and a woman were admitted for small-pox in the 1-2nd Queen's. In the 2-11th Foot, 10 cases of infectious disease were treated during the year. Of these 6 were cases of cholera (4 men, 1 woman and 1 boy), 2 of scarlet fever, 1 of measles, and 1 of scabies.

Lock Hospital.

There are 320 registered prostitutes who are regularly examined twice a month. Of these 316 were admitted into hospital during the year for the following diseases :—

Diseases.	Abscess of Labia.	Bubo.	Condyloma of Anus.	Gonorrhœa.	Inflammation of Labia.	Leucorrhœa.	Menorrhagia	Observation.	Recto-Vaginal Fistula.	Scabies.	Syphilis, Primary.	Syphilis, Secondary.	Ulcus Ani.	Ulcus Cervicis Uteri.	Ulcus Oris Uteri.	Total.
Number	4	11	3	1	3	38	1	8	1	1	189	8	4	1	43	316

The following admissions for venereal diseases among the European Troops took place, the increase being ascribed to the fact of a young regiment having during the year arrived from England :—

Corps.	January	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1-2nd Regiment ...	2	6	12	10	16	9	13	20	10	18	12	13	141
2-11th Regiment ...	...	...	8	15	8	16	15	20	24	35	26	17	184

Civil Population.

The Civil Population residing in the Cantonment limits amounted to 33,026, but only 72 births, or 2·18 per 1,000 of population, were registered. 812 deaths, or 24·58 per 1,000 of population, were recorded. The income is stated to be only 13,057 rupees, but the expenditure amounted to 38,213. New open drains have been constructed in the Sudder Bazar, and other necessary works effected. The smell of the tanneries and of the brick yards to the west of the Cantonment limits is complained of. The want of halalcores, public urinals, and dust bins is felt.

KIRKEE.

During the year the following Batteries of Artillery were quartered at Kirkee :—

Corps.	The M/1 R. A., late E/9th Brigade R. A.	A Battery 2nd Brigade, late A 4th Brigade Royal Artillery.	D Battery B Brigade R. H. A., late D-C R. H. A.	F Battery 2nd Brigade, late F 4th R. A.	Royal Engineers.	Total.
Strength ...	165	166	171	173	42	717

The temperature during the year has been rather higher than in 1876. The rain-fall was very deficient, especially during the monsoon. The total fall of rain registered was 20·89 inches. It rained during 57 days of the year.

The following table shows the sickness and mortality in each battery :—

Corps.	Average Strength.	Average Number daily sick.	Number Daily sick per 1,000 of Strength.	Number of Deaths.	Died per 1,000 of Strength.	Causes of Deaths in Hospital.				Causes of Admissions.																		
						Cholera.	Enteric Fever.	Wounds and Accidents.	All other Causes.	Cholera.	Small-pox.	Enteric Fever.	Fever, Intermittent.	Fever, Remittent.	Fever, Continued.	Delirium Tremens.	Dysentery.	Diarrhœa.	Hepatitis.	Spleen Diseases.	Respiratory.	Phthisis-Pulmonalis.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer.	Wounds and Accidents.	All other Causes.	Total.
Royal Artillery.	162	7·54	46·54	....	....	....	....	....	....	..	..	..	42	..	14	3	6	6	7	2	4	1	10	27	4	15	27	22	189
										Admitted per 1,000 of Strength.																		
										..	..	..	259·3	..	86·4	12·3	37·0	37·0	43·2	12·3	24·7	6·2	61·7	166·7	24·7	92·6	166·7	135·8	1,166·6
Late A. 4th Brigade Royal Artillery.	139	7·97	57·34	2	14·39	1	1	....	....	1	..	1	51	1	10	..	..	4	3	..	4	1	7	44	7	11	22	33	200
										Admitted per 1,000 of Strength.																		
										7·2	..	7·2	366·9	7·2	71·9	..	..	28·8	21·6	..	28·8	7·2	50·4	316·5	50·4	79·1	158·2	237·4	1,438·8
D Battery B Brigade, late D/C Royal Horse Artillery.	165	11·58	70·18	2	12·12	....	....	1	1	..	1	..	..	62	6	..	1	19	1	..	2	..	13	39	2	11	25	71	253
										Admitted per 1,000 of Strength.																		
										..	6·0	..	..	375·8	36·4	..	6·0	115·2	6·0	..	12·1	..	78·8	236·4	12·1	66·7	151·5	430·3	1,538·8
F Battery 2nd Brigade, late F 4th Brigade Royal Artillery.	28	2·05	73·21	....	....	....	....	....	....	..	..	..	18	5	6	1	1	4	..	..	..	..	3	8	1	1	5	13	60
										Admitted per 1,000 of Strength.																		
										..	..	..	642·9	178·6	214·3	35·7	35·7	142·9	..	..	..	..	107·1	285·7	35·7	35·7	178·6	464·2	2,357·1

The M—1st Late E. 9th Brigade R. A.

General Health.

The health of the Battery during the year has been on the whole good. The prevailing diseases have been Ague and Venereal complaints. No comparison with last year can be made as the Battery during the years 1875 and 1876 was divided in two Divisions; one being stationed at Baroda and the other at Kirkee. No cases of cholera, small-pox, enteric fever, apoplexy or scurvy occurred. There was no death during the year.

A Battery 2nd Brigade, Late A—4th Brigade R. A.

The health of the Battery during the period from 1st January to 31st October 1877 has on the whole been good. The number of admissions is only 2 in excess of that of the corresponding ten months of the previous year. The deaths have been 2 against 1 in 1876. There was one case of cholera and one of enteric fever, both of which proved fatal. The admissions from malarial fevers amounted to 62. They were mostly of a mild type. The average daily sick has been 7·97 compared with 9·9 during the same period in 1876.

D. Battery B. Brigade, Late D-C R. H. A.

The general health of the Battery as compared with that of the preceding year affords ground for satisfaction, for although the admissions into hospital have been more numerous they have not been as a rule of a grave character. The average daily sick has been 11·58, while in 1876 it was 10·45. There were but two fatal cases neither of which were due to climatic causes, one was from concussion of the brain, the result of an accident, the other from aneurism of the aorta.

F. Battery 2nd Brigade, Late F—4th Brigade R. A.

The health of the Battery during the year has been fair. No comparison with former years can be made as during ten months the Battery was divided between Ahmedabad and Baroda from which stations the Battery arrived at Kirkee on the 15th November. No death has occurred since the arrival of the Battery at Kirkee.

Invaliding.

The following table shows the number of men invalided for change of climate, for discharge and the causes :—

Corps.	For change of climate.	For discharge.	Total.	Ratio of Invaliding per 1,000 of Strength.			Causes of Invaliding as stated.													
				For change of climate.	For discharge.	Total.	Dementia.	Dysentery.	Hepatitis.	Chronic Rheumatism.	Secondary Syphilis.	Ulcer.	Hemiplegia.	General debility.	Dislocation of elbow joint.	Phthisis-Pulmonalis.	Fracture of the leg.	Hypertrophy of the heart.	Aneurism of the Aorta.	Choroiditis.
The M. 1st late E-9th Brigade Royal Artillery	3	4	7	18·51	24·69	43·20	..	1	..	..	1	..	1	1	1	1	..	..	..	..
A Battery 2nd Brigade R. A.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
D Battery B. Brigade R. H. A.	8	4	12	48·48	24·24	72·72	..	..	..	2	1	1	..	7	..	..	1	..	..	..
F Battery 2nd Brigade R. A.	10	1	11	357·14	35·71	392·85	1	2	1	..	..	..	..	5	..	..	..	1	1	..

Women and Children.

The following table shows the sickness and mortality among the women and children in each corps :—

Corps.	Women.					Children.					
	Average Strength.	Number of Admissions.	Average number daily Sick.	Deaths.	Causes of deaths Hepatitis.	Average Strength	Number of Admissions.	Average number daily Sick.	Deaths.	Causes of Deaths. Convulsions.	Diarrhœa.	All other Causes
The M. 1st late E/9th Brigade R. A.	17	10	0·14	...	...	41	9	3·58	1	1	...	...
A Battery 2nd Brigade R. A.	12	12	0·22	...	..	24	7	0·08	1	1	...	...
D Battery B. Brigade R. H. A.	26	25	6·61	1	1	52	14	12·22	3	2	...	1
F Battery 2nd Brigade R. A.	3	4	0·11	...	...	6	3	0·02	1	...	1	...

The principal causes of admissions were as follows :—

Corps.	Women.								Children.									
	Remittent and Continued Fevers.	Diarrhœa.	Hepatitis.	Respiratory Diseases.	Debility and Anæmia.	Child birth.	Injuries.	All other Causes.	Intermittent Fevers.	Remittent and Continued Fevers.	Diarrhœa.	Respiratory Diseases.	Eye Diseases.	Anæmia and Debility.	Convulsions.	Dentition.	Abscess and Ulcer.	Injuries.	All other Causes.
The M. 1st late E-9th Brigade R. A.	...	3	..	...	...	5	1	1	...	1	...	...							
A Battery 2nd Brigade R. A.	...	...	1	1	1	6	...	3	1	..	...	2	2	1	1	...	...	4	...
D Battery B. Brigade R. H. A.	12	...	1	...	...	8	...	4	...	4	...	2	...	1	1	1	...	...	1
F Battery 2nd Brigade R. A.	1	1	...	...	...	2	...	...	...	1	1	...	1	...	2	...	1	...	4
													1	...	...	...	...	...	...

There has been no overcrowding in barracks, hospital or patcheries nor is there any source of unhealthiness in the neighbourhood. During the monsoon the ground in the vicinity of the barracks, &c., is fairly dry. The ventilation generally is good. The officers' quarters are fair.

Gymnasium. Forty-four men passed through the gymnasium during the year; the gymnastic training has had a beneficial effect on the health of the men.

Lock Hospital. The number of prostitutes in the register is 42. They are examined twice a month. There were 124 admissions into Hospital during the year.

Civil Population. The civil population residing within cantonment limits amounts to 4,548 persons among whom—

Birth rate. Eighteen births were registered, equal to a ratio of only 3·96 per 1,000 of population, whilst 140 deaths were registered

Death rate. during the year, equal to a ratio of 30.78 per 1,000.

SATARA.

During the year 1877 the following European Troops were quartered at Satara :—

Corps.	Detachment 66th Foot.
Strength.	165

The rain-fall was 30·48 inches and it rained during 77 days of the year.
The following table shows the sickness and mortality among the Detachment at Satara :—

Crops.	Average Strength.	Average Number daily Sick.	Number daily Sick per 1,000 of Strength.	Number of deaths.	Died per 1,000 of Strength.	Died out of Hospital.	Causes of Admissions. Cholera.	Fever Intermittent.	Fever Continued.	Dysentery.	Diarrhœa.	Hepatitis.	Respiratory Diseases.	Phthisis-Pulmonalis.	Venereal Diseases.	Eye diseases.	Abscess and Ulcer.	Wounds and Accidents.	All other Causes.	Total.
Detachment 66th Foot..	159	13·61	85·60	1	6·29	1	1	75	1	3	3	8	7	1	101	4	12	15	24	255
							Admitted per 1,000 of Strength.													
							6·3	471·7	6·3	18·9	18·9	50·3	44·0	6·3	635·2	25·2	75·5	94·3	150·9	1,603·8

General Health. The health of the Detachment during the year has been indifferent, owing almost entirely to the prevalence of venereal diseases. The total number of admissions was 255, the average daily sick for the period being 13·61. Only one death occurred, and that out of Hospital, from fatty degeneration of the heart. The chief admissions were cholera, 1, malarious fever, 76, dysentery, 3, diarrhœa, 3, hepatitis, 8, and venereal diseases, 101. No comparison can be made between this and the previous year, as the detachment was only about six weeks here in 1876.

Invaliding.

Corps.	For change of climate.	For discharge.	Total	Ratio of Invaliding per 1,000 of Strength. For change of climate.	For discharge.	Total.	Causes of Invaliding as stated. Hepatic Disease.	Phthisis Pulmonalis.	Aneurism of the Abdominal Aorta.	Stricture of Urethra.
Detachment 66th Foot...	2	3	5	12·59	18·88	31·47	2	1	1	1

The following table shows the average strength, sickness and mortality among women and children of the Detachment:—

Corps.	Women.				Children.			
	Average Strength.	Number of Admissions.	Average number daily Sick.	Deaths.	Average Strength.	Number of Admissions.	Average number daily Sick.	Deaths.
Detachment 66th Foot	16	14	0·66	...	35	15	0·79	...

The health of the women and children has been good. Mild though somewhat obstinate conjunctivitis prevailed among the latter during the monsoon, for which no particular cause could be shown.

Barracks. The only apparent possible cause of unhealthiness in the vicinity of the barracks is the proximity of the Government Garden with its irrigation, and to which some cases of malarious fever seem to be traceable. The ground about the barrack is not marshy during the monsoon.

Infectious Diseases. Only one case of this class has been treated, *viz.* cholera. It occurred in the new detached barrack, but there is nothing defective about the building or site.

AHMEDNAGAR.

Garrison. The European troops quartered at this station during the year, were—

Corps.	N-1 R. A. late F-9 R. A.	Detachment, 66th Regiment.	Total.
Strength	147	361	508

Climate. The average annual rain-fall amounts to 21 inches. The Meteorology of the year presented nothing worthy of remark, except perhaps the lateness of the rain. The restorative powers of the climate of the Deccan on men who have contracted malarious fevers elsewhere are said to be well exemplified in the case of this battery.

The following table shows the sickness and mortality among the troops at Ahmednagar:—

Corps.	Average Strength.	Average Number Daily Sick.	Number Daily Sick per 1,000 of Strength.	Number of Deaths.	Died per 1,000 of Strength	Causes of Deaths.				
						Cholera.	Fever Remittent.	All other Causes.	Died out of Hospital.	Suicide.
N-1 Royal Artillery	158	6·50	41·17	2	12·66	..	1	..	1	..
Detachment, 66th Foot ..	353	20·06	56·83	4	11·33	1	..	2	..	1

Corps.	Causes of Admissions.																				
	Cholera.	Small-pox.	Enteric Fever.	Fever Intermittent.	Fever Remittent.	Fever continued.	Delirium Tremens.	Dysentery.	Diarrhœa.	Hepatitis.	Spleen Diseases.	Respiratory Diseases.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer.	Wounds and Accidents.	All other Causes.	Total.
N-1 Royal Artillery	..	..	..	38	2	..	..	1	5	6	1	..	7	35	7	5	27	35	169
Admitted per 1,000 of Strength.	..	..	..	240·5	12·6	..	..	6·3	31·7	38·0	6·3	..	44·3	221·5	44·3	31·7	170·9	221·5	1,069·6
Detachment, 66th Foot ..	2	3	2	135	..	21	2	16	32	7	1	23	11	75	10	16	42	101	499
Admitted per 1,000 of Strength.	5·7	8·5	5·7	382·4	..	59·5	5·7	45·3	90·7	19·8	2·8	65·1	31·2	212·5	28·3	45·3	119·0	286·1	1,413·6

General Health.

The health of the battery R. A. during the year was most satisfactory. The number of admissions were fewer than in the previous year, 169 against 255. The average number of daily sick was less, being 6·50 against 7·35. The number of deaths was in both the years the same, being only 2. Of these 1 took place out of hospital. Of the 169 admissions, 40 were from malarial fevers of a mild type and amenable to treatment. One however proved fatal. Venereal diseases caused 35 admissions. Many of the cases were contracted from unregistered women carrying on prostitution in a neighbouring garden. Accidents caused 27 admissions. No admission has occurred from cholera, small-pox, enteric fever, apoplexy, delirium tremens or scurvy. Only one death took place in hospital from remittent fever and one out of hospital. A man committed suicide by shooting himself through the head.

The health of the detachment, 66th foot, has been fairly good. The number of admissions cannot be compared with the previous year, as the detachment was only 2 months at Ahmednagar in 1876. Ague produced the largest number of admissions, and nearly all the men contracted the disease in other stations; some in Sind, others in Belgaum or Poona. There were 4 deaths, of which two were attributed to the effects of residence in India, one of cholera, and one of peritonitis. Venereal diseases caused 75 admissions, of which 31 were from syphilitic affections and 44 for gonorrhœa. The lock hospital was found useful in keeping the disease in check.

Invaliding.

Corps.	For change of climate.	For discharge.	Total.	Ratio of Invaliding per 1,000 of strength.			Causes of Invaliding as stated.						
				For change of climate.	For discharge.	Total.	Deafness.	Debility.	Palpitation.	Hepatitis.	Secondary Syphilis.	Chronic Rheumatism.	General debility and diarrhœa.
N-1 Royal Artillery ...	7	1	8	44·30	6·33	50·63	1	3	1	1	1	1	...
Detachment 66th Foot ...	9	7	16	25·50	19·83	45·33	...	...	...	...	...	...	16

Women and children.

The following table shows the average strength, the sickness and mortality among the women and children in each corps :—

Corps.	Women.					Children.									
	Average strength.	Number of admissions.	Average number daily sick.	Deaths.	Causes of deaths. Cholera.	Average strength.	Number of admissions.	Average number daily sick.	Deaths.	Causes of Deaths. Cholera.	Meningitis and Hydrocephalus.	Tabes mesenterica.	Anæmia and Atrophy.	Dysentery.	All other Causes.
N 1 Royal Artillery ...	11	13	0·68	...	...	27	15	0·50	1	...	...	...	1	...	...
Detachment, 66th Foot ..	46	73	2·30	1	1	106	146	7·15	5	1	1	1	...	1	1

N.-1 Royal Artillery—The health of the women and children has been satisfactory. The total admissions among the women amounted to 13, of which 5 were from child-birth and 2 from conjunctivitis. The admissions among the children amounted to 15, of which 12 were from conjunctivitis. Only one child died during the year from anæmia.

Detachment 66th Foot.—The chief sickness among the children was opthalmia. In July, October and November conjunctivitis was epidemic. There were 77 admissions from this cause. Ague caused 18 admissions. One woman, and one child died from malignant cholera in September. One child died in August from meningitis, one in December from chronic dysentery. One boy was killed in October by a roller going over his head.

Barrack No. 1, R. A.

The barracks remain in the same condition as reported in 1876, but in the artillery barracks the country made, and untrapped drains have been entirely disconnected from the buildings. The water from the ablution-rooms and Sergeant's quarters is however received into cesspools. The only probable cause of unhealthiness in the neighbourhood is the too close proximity of the Native Followers Lines, which are only 180 yards distant from the hospital and are most objectionable. No change has taken place in the barracks occupied by the 66th Detachment. Suitable quarters for the Hospital Sergeant of the R. A. Hospital are urgently required.

Infectious Diseases.

There have been 3 cases of small-pox among the men of the 66th Regiment during the year, all of which resulted in recovery. Two cases of enteric fever which also resulted in recovery. There were 2 cases of cholera among the men, 1 among the women and one among the children. The cases among the women and children proved fatal.

Lock Hospital.

There are 178 registered prostitutes who are examined twice a month. The number of admissions during the year was 340. The number of admissions among the Europeans stationed in Ahmednagar was as follows :—

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Europeans	3	11	12	3	9	5	27	9	10	5	10	3	107

It is to be regretted that owing to the distress, during the year, caused by the famine in and about Ahmednagar, prostitution was resorted to as a means of earning a livelihood by a great many women, who under ordinary circumstances would have been supported by their husbands, or parents and that consequently a far greater number of prostitutes than usual were registered during the year, (viz., 58 against 27 in the previous year) and they being nearly in every case diseased, the spread of venereal affections has been considerable.

The medical officer is of opinion that the Lock Hospital has been of the greatest service in checking the spread of disease during the year, which otherwise, he is confident, would have been considerable ; nevertheless taking into consideration the above facts he thinks that the year 1877 will contrast favourably with the preceding year: 19 convictions were obtained by the Police against women for practising private prostitution and altogether 58 new prostitutes were registered of these 10 were in July, 5 in August, and 8 in September during which months the famine was most severe.

Civil Population.

The civil population residing within the cantonment limits amounted to 2,730. Increase in population of 288, owing to the late famine and Railway works now in progress.

Birth-rate.

Seventy-two births were registered during the year, equal to a ratio of 26·37 per 1,000 of population.

Death-rate.

Only two deaths were recorded during the year, equal to a ratio of 0·73 per 1,000 of population.

The great nuisance caused by the growth of prickly-pear around villages was brought to notice by Major Moore, the Cantonment Magistrate, who attributes much of the disease in the neighbouring villages to this cause as it conceals all kinds of filth. Major Moore points out that under Act VII. of 1867, the District Magistrate has power to act, but he declines to do so without the sanction of Government.

PURANDHAR.

Garrison.

During the year the following details were quartered at Purandhar ;—

Corps.	Royal Artillery.	2-7 R. Fusiliers.	Army Medical Department.	Sanitary Staff.	E-B. R. H. A.	B-2 R. A.	D-2 R. A.	F-2 R. A.	M-1 R. A.	3rd Hussars.	1-2nd Foot.	2-11th Foot.	2-15th Foot	2-17th Foot.	66th Foot.	83rd Foot.	Total.
Strength	1	1	1	4	1	1	2	2	2	32	39	11	5	9	53	8	172

Climate.

The coldest month was January the thermometer marking 55°. The hottest month was May the thermometer marking 95°. The rain commenced on, the 6th June and continued with occasional breaks of 5 and 6 days till the end of October.

The total rain-fall was 35·43 inches, being 3·81 inches more than last year. It rained during 95 days of the year.

The following table shows the sickness and mortality among the details of the Purandhar Sanitarium :—

Corps.	Average Strength.	Average number daily Sick.	Number daily sick per 1,000 of Strength.	Number of Deaths.	Died per 1,000 of Strength.	Causes of Admissions. Enteric Fever.	Fever, Intermittent.	Diarrhœa.	Hepatitis.	Respiratory Diseases.	Phthisis Pulmonalis.	Rheumatism.	Venereal diseases.	Eye Diseases.	Abscess and Ulcers.	Wounds and Accidents.	All other Causes.	Total.
European Details.	120	6·82	56·83	...	...	1	64	6	8	2	2	4	32	3	4	3	102	231
						Admitted per 1,000 of Strength.												
						8·3	533·3	50·0	66·7	16·7	16·7	33·3	266·7	25·0	33·3	25·0	850·0	1925·0

General Health.

The total admissions from all causes was 231. The average number of daily sick for the year was 6·82. No cases of infectious disease are reported and no death took place. Intermittent Fever caused the largest number of admissions (64); this disease, or the liability to it, was in all cases incurred previous to arrival at this station. Venereal diseases caused the next largest number of admissions (32), the disease was, in almost all cases incurred previous to arrival.

Invaliding. None.

Women and Children.

The following table shows the average strength, sickness and mortality among the women and children in the European details at Purandhar Sanitarium during the year :—

Corps.	Women. Average Strength.	Number of Admissions.	Average number daily Sick.	Deaths.	Children. Average Strength.	Number of Admissions.	Average number daily Sick.	Deaths.	Causes of Deaths. Convulsions.
European Details ...	9	25	0·75	...	18	24	0·80	1	1

The women have enjoyed good health, and there has been no death among them. The chief cause of admissions was from anæmia and debility contracted at their previous stations. None of the diseases seems to have been contracted here.

The health of the children was very much improved by their residence at the Sanitarium. The admissions among the children were due almost exclusively to diseases contracted at their previous stations.

Barracks.

The Barracks are built in the gorge between the Wazeerghwar and Purandhar hills. The situation is admirably chosen, as the Barracks get the breeze blowing through the pass, both from East and West.

Civil Population.

The Civil Population residing within cantonment limits amounted to 247.

Birth-rate.

Thirteen births, or 52·63 per 1,000 of population, were registered during the year.

Death-rate.

Thirteen deaths or 52·63 per 1,000 of population were recorded.

NORTHERN DIVISION OF THE ARMY.

AHMEDABAD.

Garrison.

The European Troops quartered at this station during the year were :—

Corps.	Head Quarter 2nd Brigade R. A.	A-2 R. A.	Detachment 2/15th Foot.	Total.
Strength... ...	11	169	90	270

The total rain-fall was 21·10 against 30·41 inches in 1876.

The following table shows the sickness and mortality among the Troops during the year:—

Corps.	Average Strength.	Average Number daily Sick.	Number daily sick per 1,000 of strength.	Number of Deaths.	Died per 1,000 of Strength.	Causes of Deaths.				Causes of Admissions.																
						Enteric Fever.	Apoplexy.	Phthisis Pulmonalis.	Out of Hospital.	Enteric Fever.	Fever, Intermittent.	Fever Remittent.	Fever, Continued.	Apoplexy.	Delirium Tremens.	Dysentery.	Diarrhœa.	Hepatitis.	Respiratory Diseases.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer.	Wounds and Accidents.	All other Causes.	Total.
Royal Artillery ..	99	7·15	72·22	1	10·10	..	..	1	..	..	17	41	1	..	1	3	4	2	3	13	24	1	9	10	31	160
Admitted per 1,000 of Strength.										..	171·7	414·1	10·1	..	10·1	30·3	40·4	20·2	30·3	131·3	242·4	10·1	90·9	101·0	313·1	1,616·1
Detachment 2-15th Regiment.	92	5·51	59·89	5	54·35	1	1	..	3	1	3	55	..	1	..	2	3	..	4	5	18	5	7	3	25	132
Admitted per 1,000 of Strength.										10·9	32·6	597·8	..	10·9	..	21·7	32·6	..	43·5	54·3	195·7	54·3	76·1	32·6	271·7	1,434·8

General Health, Royal Artillery.

The health of the Royal Artillery at Ahmedabad during the year has been good; malarial fevers were the most numerous and gave by far the largest number of admissions to Hospital

Their prevalence was probably due to the causes in operation in most parts of this country more than to any local peculiarity.

The admissions were 1,616·1 per 1,000 of mean strength as against 1,439·3 in the previous year, and the average daily sick also was higher than in 1876 being 72·22 compared with 62·55 per 1,000 in the former year. The number of deaths was, however, less than in 1876 being 1 and 2 respectively. The fatal case was one of Phthisis pulmonalis and could not be attributed to the climate of India, as hereditary predisposition was distinctly traced.

Detachment 2/15th Regiment.

The health of the detachment 2-15th Regiment at this station during the year has, on the whole been fairly good compared with the previous year; the admissions and average number of daily sick were 1,434·8 and 59·89 against 1,559·63 and 62·38 per 1,000 of strength in 1876 respectively.

The deaths in 1877 were, however, 5 compared with 2 in 1876, the excess being due to 3 fatal cases of sunstroke which occurred between the 11th and 17th of June, when the temperature seems to have been excessively high. Two of the men died out of Hospital, one whilst out on a shooting excursion and the other in the married quarters. The fourth death was caused by the accidental suffocation of a drunken man and the fifth by enteric fever. No insanitary condition in or near the Barracks to which the occurrence of the latter disease could be ascribed, was discovered.

Malarial fevers, the result of climate, were the most prevalent, but they were neither very severe nor prolonged.

Invaliding.

Corps.	For change of Climate	For Discharge.	Total.	Ratio of Invalding per 1,000 of Strength.			Causes of Invaliding.					
				For Change of Climate.	For Discharge.	Total.	Chronic Rheumatism.	Secondary Syphilis.	Dilatation of the Aorta.	Debility.	Locomotor Ataxy.	Dysentery.
Royal Artillery... ...	6	...	6	60·61	...	60·61	1	1	1	3	...	...
Detachment 2-15th Regiment	4	...	4	43·48	...	43·48	...	...	...	2	1	1

Women and Children.

The following table shows the sickness and mortality among women and children for each corps :—

Corps.	Women.					Children.						
	Average Strength.	Number of Admissions.	Average number daily sick.	Deaths.	Causes of Deaths. Cholera.	Average Strength.	Number of Admissions.	Average Number daily sick.	Deaths.	Causes of Deaths. Convulsions.	Dentition.	Diarrhœa.
Royal Artillery... ...	14	13	0·25	...	...	27·1	9	0·10	1	1	...	...
Detachment 2-15th Regiment	15	19	0·39	1	1	27	23	0·36	2	...	1	1

Royal Artillery.

The health of the women and children has been good, one death having occurred among the latter.

Detachment 2/15th Regiment.

The health of the women and children has been good. A fatal case of cholera occurred amongst the women.

Two deaths (one from teething and one from diarrhœa) occurred amongst the children.

Filters

The ordinary chatty filters had been in use up to the end of October, when Macnamara filters were supplied to the barracks, hospital, and married quarters. These filters answer admirably. The water for drinking and cooking purposes is drawn from a well in the immediate vicinity of the old infantry barracks.

The water is drawn by means of a bucket and rope, and is distributed by bheesties in the usual manner.

Gymnasium.

Forty-two men of the detachment 2-15th Regiment have undergone gymnastic training during the year with apparent benefit.

Lock Hospital.

The registered prostitutes amount to 581, who are examined twice a month. The number of admissions into hospital during the year was 25. There were 10 cases of gonorrhœa, 14 of syphilis primary, and 1 of syphilis secondary.

The working of the Act in the cantonment is satisfactory, the amount of disease among the women being but small. In the city of Ahmedabad the attendance of the prostitutes for examination is not as regular as it ought to be.

The following return will show the admissions among the European Troops from venereal diseases :—

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
EuropeanTroops ...	2	2	5	1	3	3	3	1	10	5	5	4	44

No further measures are required except that the attendance of the city prostitutes should be more strictly enforced.

Civil Population.

The civil population amounts to 4,002. 147 births, equal to a ratio of 36·73 per 1,000 of population, were registered during the year. 105 deaths or 26·24 per 1,000 of population, were recorded.

The want of wells in the Sudder Bazar is brought to notice, as the course of the Sabarmatti river since the flood has changed to the bank opposite the Sudder Bazar and during the hot weather the inhabitants suffer great inconvenience in bringing water through the heavy sand of which the bed of the river is composed. 2 or 3 wells if provided by Government would be a great boon to them.

DEESA.

During the year the following troops were quartered at Deesa :—

Corps.	B-2nd Brigade Royal Artillery.	2nd Battalion 15th Regiment.	Total.
Strength	149	533	682

Climate.

The total rain-fall during 1877 amounted to 11·66 inches and the number of days on which rain fell was 35. The year was remarkable for the small amount of rain which fell there being less than half the average amount, and in consequence the hot season was prolonged, and there was an unusually high temperature both day and night. The air was extremely dry, and there was little dew at any season of the year.

The following table shows the sickness and mortality among the troops at Deesa:—

Corps.	Average Strength.	Average number of daily Sick.	Number of daily Sick per 1,000 of Strength.	Number of Deaths.	Died per 1,000 of Strength.	Causes of Deaths in Hospital.				Causes of Admissions.			
						Enteric Fever.	Sun Stroke.	Hepatitis.	All other Causes.	Enteric Fever	Fever Intermittent.	Remittent Fever.	Continued Fever.
B-2nd Brigade Royal Artillery	149	8·66	58·12	1	6·71	...	...	...	1	1	42	1	4
										Admitted per 1,000 of Strength.			
										6·7	281·9	6·7	26 8
2nd Battalion 15th Regiment	519	14·32	27·59	6	11·56	1	3	1	1	2	168	5	8
										Admitted per 1,000 of Strength.			
										3·9	323·7	9·6	15·4

Corps.	Causes of Admission—*continued.*													
	Sun Stroke.	Delirium Tremens.	Dysentery.	Diarrhœa.	Hepatitis.	Spleen Diseases.	Respiratory Diseases	Rheumatism.	Venereal Diseases.	Eye Diseases	Abscess and Ulcer.	Wounds and Accidents.	All other Causes.	Total.
B-2nd Brigade Royal Artillery ..	1	..	2	5	9	1	6	7	18	4	15	30	83	229
	Admitted per 1,000 of Strength.													
	6·7	..	13·4	33·6	60·4	6·7	40·3	47·0	120·9	26·8	100·7	201·3	557·0	1,536·9
2nd Battalion 15th Regiment ..	7	23	13	16	6	..	6	11	59	2	23	31	95	475
	Admitted per 1,000 of Strength.													
	13·5	44·3	25·0	30·8	11·6	..	11·6	21·2	113·7	3·9	44·3	59·7	183·0	915·2

General Health, B./2 R. A.

The general health was good. The number of admissions into hospital during 1877 was 229 against 261 in 1876. The average daily sick was 8·66 against 9·42 in 1876.

This shows a slight improvement. In 1876 there were no deaths. In 1877 there was only one from Hydrophobia.

2/15th Foot.

The health of the regiment was remarkably good; owing to the dry season there was very little malarious fever. The admissions, daily sick, and deaths, were less than the previous year, but then the regiment was stationed at Poona. The deaths were for the most part caused by sun-stroke

Two cases of enteric fever occurred, but they were believed to have been contracted either on the line of march or at Poona, and not at this station.

Invaliding.

Corps.	For change of Climate.	For discharge.	Total.	Ratio of Invaliding per 1,000 of Strength.			Causes of Invaliding as stated.			
				For Change of Climate.	For discharge.	Total.	Hepatitis.	Debility.	Accidents.	Local affections.
B-2 late B-4 Royal Artillery ...	6	...	6	40·27	...	40·27	1	1	2	2
2-15th Regiment.	8	...	8	15·41	...	15·41	none stated.			

The following table shows the average strength, sickness and mortality among the women and children in each corps :—

Corps.	Women.					Children.								
	Average Strength.	Number of Admissions.	Average number daily Sick.	Deaths.	Causes of Deaths. All other Causes.	Average Strength.	Number of Admissions.	Average number daily Sick.	Deaths.	Causes of Deaths. Dentition.	Convulsion.	Meningitis and Hydrocephalus.	Diarrhœa.	All other Causes.
B-2nd Royal Artillery	19	13	0·23	..	..	32	8	0·18	2	2	..	..	..	..
2-15th Foot	78	71	1·79	1	1	183	61	2·39	10	..	2	1	6	1

The general health of the women and children was good. One woman of the 2-15th regiment died. Two children of the R. A. died while teething. In 2-15th regiment the principal causes of deaths among children were diarrhœa and convulsions in teething during the rainy season.

The chatty filters are used in barracks, hospital, and patcheries. No analysis of the water has been made.

Gymnasium.

74 men of the 2-15th regiment passed through the gymnasium. The gymnastic exercises benefitted the young men, but not the old.

Lock Hospital.

The average number of prostitutes during the year was 23·1. The number of admissions into Hospital was 130 against 186 in 1876, distributed thus :—

	1877.	1876.
Leucorrhœa	99	168
Ulceration *os-uteri*	17	12
Gonorrhœa	9	3
Abscess vulva	2	...
Syphilis primary	1	2
Do. Secondary	1	1
Bronchitis	1	...
Total ...	130	186

The working of the contagious diseases Act is satisfactory. The registered women are carefully examined once a week.

The admissions from veneral diseases amongst the troops at Deesa during 1877, were the following :—

Syphilis Primary	41
Do. Secondary	4
Gonorrhœa	32
Stricture	3
Total ...	80

13 out of these 80 cases were contracted not at Deesa, but at some other stations.

The following return shows the Civil population residing in the cantonment of Deesa,

its area, and the births and deaths, which occurred in it during 1876 :—

Civil Population.	Area in square miles.	Average Population per square mile.	Number of Deaths.					Ratio per 1,000 of Population.					Births.	Ratio per 1,000 of Population.
			Fever.	Bowel Complaints.	Injuries.	All other Causes.	Total.	Fevers.	Bowel Complaints	Injuries.	All other Causes.	Total.		
9,335	5·00	1867·00	77	40	10	123	250	8·25	4·28	1·07	13·18	26·78	175	18·75

Income in 1877. Rs. 12,370-8

Expenditure in 1877. Rs. 15,063-2

MOUNT ABU.

Garrison. During the year the following troops were quartered at Mount Abu:—

Corps.	Sanitarium Staff.	British Medical Force.	Detachment 2-15th Regiment.	Total.
Strength	4	1	63	68

20·34 inches of rain fell in 42 days of the year, or a little more than ⅓rd of last year, and about ¼th of the usual average.

The following table shows the sickness and mortality among the troops :—

Corps	Average Strength.	Average number daily Sick.	Number daily sick per 1,000 of Strength.	Number of Deaths.	Number died per 1,000 of Strength.	Causes of Deaths.	Causes of Admissions.									
						Suicidal.	Fever Continued.	Delirium Tremens	Dysentery.	Diarrhœa.	Hepatitis.	Venereal diseases.	Abscess and Ulcer	Wounds and accidents.	All other Causes.	Total.
Sanitarium	74	1·66	22·43	1	13·51	1	23	1	1	3	1	16	3	10	8	66
							Admitted per 1,000 of Strength.									
							310·8	13·5	13·5	40·6	13·5	216·2	40·6	135·2	108·1	891.

General Health. The health of the Troops at this sanitarium has been good. There were 66 admissions against 85 in 1876. The average daily number of sick was 1·66 against 1·92 in 1876. There was only one death in the case of a man of the detachment 2-15th foot, who shot himself.

Ague is the disease of the district; the admissions under this head were 23, giving 310·8 per 1,000 of strength.

In 1876 there were 54, giving 710·5 per 1,000 of strength. Venereal diseases caused 16 admissions during the year against 5 in 1876. The cause may be attributed to the fact of the men arriving from Deesa bringing the disease with them and propagating it.

Women and children. The following table shows the average strength and the sickness and mortality among the women and children at the Sanitarium :—

Corps.	Women.				Children.			
	Average Strength.	Number of Admissions.	Average Number Daily Sick.	Deaths.	Average Strength.	Number of Admissions.	Average Number Daily Sick.	Deaths.
Sanitarium	10	7	0·30	...	27	3	0·30	...

The health of the women and children has been good.

The climate of Abu has a very beneficial influence on the health of children. After a short residence they become robust and present a very healthy appearance.

BARODA.

During the year the following troops were quartered at Baroda.

Corps.	Detachment A-2nd Royal Artillery.	Detachment 2-15th Regiment.	Total.
Strength	69	137	206

Climate.

Up to the 15th February the weather is cool and sometimes cold with north-east winds generally prevailing. From this date to the middle of June, the hot season lasts and is very trying; the rains then usually set in, and continue to the end of August. September and October are very unpleasant months: sultry, damp and oppressive. November and December are pleasantly cool. During the past year the heat was great and long-continued and the rain-fall very limited. In the cold season the climate is liable to sudden and great alternations of temperature, which are inimical to health, and at all times of the year it is depressing, and one in which convalescence from sickness is slow.

22·42 inches of rain fell in 42 days of the year.

The following table shows the sickness and mortality among the troops at this station :—

CORPS.	Average Strength.	Average Number daily sick.	Number daily sick per 1,000 of strength.	Number of Deaths.	Died per 1,000 of Strength.	Causes of Deaths in Hospital. Cholera.	Enteric fever.	Apoplexy.	Delirium Tremens.	Causes of Admissions. Cholera.	Small-pox.	Enteric fever.	Fever Intermittent.	„ Remittent.	„ Continued.	Apoplexy.	Delirium Tremens.	Dysentery.	Diarrhœa.	Hepatitis.	Respiratory diseases.	Phthisis Pulmonalis.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer.	Wounds and Accidents.	All other Causes.	Total.
Detachment A-2 Royal Artillery ..	12	1·36	113·33	..	..	..	..	..	..	..	..	..	23	..	6	..	..	1	2	..	3	..	..	6	..	1	..	16	58
										Admitted per 1,000 of Strength.																			
										..	..	..	1,916·7	..	500.0	..	..	83·3	166·7	..	250·0	..	..	500·0	..	83·3	..	1,333·3	4,833.3
Detachment 2-15th Regiment ..	145	10·33	71·24	4	27·52	1	1	1	1	1	2	2	64	3	51	1	1	12	9	2	4	2	8	33	5	12	17	70	299
										Admitted per 1,000 of Strength.																			
										6·9	13·8	13·8	441.4	20.7	351·7	6·9	6·9	82·8	62·1	13·8	27·5	13·8	55·1	227·6	34·5	82·8	117·2	482·8	2,062.1

General Health.

Detachment A-2nd Royal Artillery.—The health of this half battery since its arrival at Baroda on the 7th November has not been satisfactory, owing to the prevalence of febrile disease and affections of the stomach and bowels. This is believed to be mainly due to the sudden change from a comparatively healthy climate like Kirkee, where it was quartered in most excellent double-storied barracks to the depressing station of Baroda where it is located in old dilapidated and defective barracks which are in a generally insanitary condition due to age and numerous faults of plan and construction.

Detachment 2-15th.—Health unsatisfactory; the chief sources of disease being the insanitary condition of the barracks, the depressing nature of the climate, the absence of

recreation, the want of a lock-hospital, and the temptation to debauchery and intemperance which the near vicinity of a very corrupt native city, and the unchecked sale of cheap and deleterious native drinks.

Invaliding.

Corps.	For change of climate.	For Discharge.	Total.	Ratio of invaliding per 1,000 of Strength.			Causes of Invaliding.					
				For Change of Climate.	For Discharge.	Total.	Heart diseases.	Paralysis following Sunstroke.	General Debility	Phthisis Pulmonalis.	Congenital Hernia.	Accident.
Detachment, A-2 R. A. ...	1	...	1	83·33	...	83·33	...	...	1	...	...	...
Detachment 2-15th Regiment	7	3	10	48·28	20·68	68·96	3	1	3	1	1	1

There has been no sickness of any kind among the women and children of the Detachment 2-15 Regiment excepting the one case of abortion in the case of one women in the Detachment 2-15th Regiment.

The following return shews the civil population residing in the Cantonment of Baroda its area, and the births and deaths which occurred in it during 1877 :—

Civil Population.	Area in square miles.	Average population per square mile.	Number of Deaths.							Ratio per 1,000 of Population.							Births.	Ratio per 1,000 of population
			Cholera.	Small-pox.	Fevers.	Bowel Complaints.	Injuries.	All other Causes.	Total.	Cholera.	Small-pox.	Fever.	Bowel complaints.	Injuries.	All other Causes.	Total.		
2,451 ...	9·00	272·33	3	2	41	11	1	24	82	1·22	0·82	16·73	4·49	0·41	9·79	33·46	38	15·50

Income ... ... Rs. 3,665
Expenditure ... ... Rs. 2,021

MHOW DIVISION.

MHOW.

Garrison. During the year the following troops were quartered here :—

Corps.	E. Battery B. Brigade Royal Horse Artillery.	3rd Kings C. Hussars.	17/8th Royal Artillery.	2-17th Regiment.	Total.
Strength	164	415	80	686	1,345

Climate. 28·09 inches of rain fell in 50 days during the year.

The following table shows the sickness and mortality among the troops at Mhow :—

Corps.	Average Strength.	Average Number Daily Sick.	Number Daily Sick per 1,000 of Strength.	Number of Deaths.	Died per 1,000 of Strength.	Causes of Deaths. Enteric Fever.	Fever, Remittent.	Apoplexy.	Diarrhœa.	Hepatitis.	Phthisis Pulmonalis.	All other Causes.	Died out of Hospital.	Causes on Admissions. Enteric Fever.	Fever, Intermittent.	Fever, Remittent.	Fever, Continued.	Apoplexy.	Delirium Tremens.	Dysentery.	Diarrhœa.	Hepatitis.	Spleen Diseases.	Respiratory Diseases.	Phthisis Pulmonalis.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer.	Wounds and Accidents.	All other causes.	Total.
E Battery, B. Brigade Royal Horse Artillery.	161	12·43	77·20	:	:	:	:	:	:	:	:	:	:	:	72	:	9	:	:	:	6	9	3	11	:	16	47	3	10	18	69	273
														Admitted per 1,000 of Strength.																		
														:	447·2	:	55·9	:	:	:	37·3	55·9	18·6	68·3	:	99·4	291·9	18·6	62·1	111·8	428·6	1,695·6
3rd K. C. Hussars.	382	37·15	97·25	5	13·09	:	:	:	1	1	:	2	1	2	89	:	36	3	3	1	11	65	6	27	5	26	57	10	6	66	192	605
														Admitted per 1,000 of Strength.																		
														5·2	232·9	:	94·2	7·9	7·9	2·6	28·8	170·2	15·7	70·7	13·1	68·1	149·2	26·2	15·7	172·8	502·6	1,583·8
17-8 Royal Artillery.	14	0·35	:	:	:	:	:	:	:	:	:	:	:	:	7	:	:	:	:	:	1	:	:	:	:	:	2	:	:	1	4	15
														Admitted per 1,000 of Strength.																		
														:	500·0	:	:	:	:	:	71·4	:	:	:	:	:	142·9	:	:	71·4	285·7	1,071·4
2-17th Foot.	687	39·19	57·04	5	7·28	1	1	1	:	:	1	1	:	2	297	3	37	1	:	20	12	12	:	39	1	41	94	17	68	54	267	965
														Admitted per 1,000 of Strength.																		
														2·9	432·3	4·4	53·8	1·5	:	29·1	17·5	17·5	:	56·8	1·5	59·7	136·8	24·7	99·0	78·6	388·6	1,404·7

E. Battery B. Brigade Royal Horse Artillery—The health of the Battery during the year has been good. The number of admissions for the year 1877 amounted to 273 against 180 in 1876. The excess was chiefly owing to venereal disease in the form of gonorrhœa, and malarious fever in the form of ague. There were no disease of serious nature. The greater portion of admissions occurred during the months of September, October and November.

General health of the men.

3rd K. C. Hussars. The health of the Regiment has been indifferent.

The average strength for the year has been 382 against 492 in 1876.
Number of admissions 605 against 606 in 1876.
Average number of daily sick 37·15 against 32·04 in 1876.
Average number of days spent in Hospital, 22·39 against 19·36 in 1876 by each sick man.
The number of deaths is slightly lower, 5 against 6 in 1876.

The number of Invalids is higher, 48 against 37 in 1876. The loss of strength per 1,000 is higher, 125·66 against 118·02 in 1876.

The general indifferent health of the Regiment during the year is due to prolonged service in India, so far as those men concerned who came out with the corps in 1868, and partly to the fact that, there are several volunteers from other Regiments serving in it, most of whom have been in the country for period varying from 10 to 18 years continuously, and who are extremely liable to break down.

The principal diseases causing admissions have been malarious and continued fevers; from venereal diseases 57 admissions against 62 in 1876.

There were only two admissions from enteric fever and no deaths, against 5 admissions and 2 deaths in 1876.

17-8 *Royal Artillery.*—The general health of the Battery has been good. It arrived here from Aden on the 7th of November; from the latter date up to the 31st of December there were altogether 15 admissions, 7 for Ague, 1 for Bronchitis.

2-17th *Regiment.*—The health of the Battalion has been good. The total number of admissions was 965. The average number of daily sick 39·19. The number of deaths was 5.

The causes of the principal diseases may be ascribed to malaria, chills, errors of diet, intemperance and constitutional predisposition.

Intermittent fever prevailed extensively during the latter half of the year. The source of the malaria appears to be from the low ground surrounding the station, the soil of which is that known as cotton, and which during the monsoon months is saturated with moisture. The cause of the 2 cases of enteric fever could not be detected.

Invaliding.

Corps.	For Change of Climare.	For Discharge.	Total.	Ratio of Invaliding per 1,000 of strength. For change of Climate.	For Discharge.	Total.
E.B- Royal Horse Artillery	7	2	9	43·47	12·43	55·90
3rd K. O. Hussars	43	5	48	112·57	13·09	125·66
17-8 Royal Artillery	1	...	1	71·43	...	71·43
2-17 Regiment	18	9	27	26·20	13·10	39·30

The following are the causes of Invaliding :—

Corps.	Causes of Invaliding. Rheumatism Chronic.	Secondary Syphilis.	Phthisis Pulmonalis.	Congenital Imbecility.	Neuralgia.	Impaired Vision.	Deafness from Disease.	Palpitation.	Aneurism Aorta Abdominal.	Varicose Veins.	Asthma.	Dyspepsia.	Diarrhœa.	Ulceration of Intestines.	Hepatitis.	Abscess of Liver.	Splenitis.	Bright Disease.	Spermatorrhœa.	Synovitis.	General Debility.	Gunshot wound.	Syphilitic Rheumatism.	Stricture Urethra.	Ague.	Remittent Fever.	Scrofula.	Anæmia.	Epilepsy.	Valve Disease of Heart.	Hypertrophy of Heart.	Dysentery.	Calculus of Kidney.	Ostitis.	Contraction of Tendons.	Fracture of Phalanges.
E. Battery B. Brigade Royal Horse Artillery.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	5	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..
3rd K. O. Hussars	1	2	3	1	1	1	1	1	2	1	1	1	2	1	7	1	1	1	1	1	16	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
17/8th Royal Artillery	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2/17th Regiment	3	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	3	..	..	..	4	1	1	2	2	1	2	2	1	1	1	1

Women and Children.

The following table shows the average strength, together with the sickness and mortality of the women and children in each corps :—

Corps.	Women. Average Strength.	Number of admissions.	Average Number Daily Sick.	Deaths.	Causes of Deaths. Heart diseases.	All other causes.	Children. Average Strength.	Number of admissions.	Average Number Daily Sick.	Deaths.	Causes of Deaths. Dentition.	Convulsions.	Diarrhœa.	Bronchitis and Pneumonia.	Croup and Diphtheria.	All other causes.
E-B. Royal H. Artillery ..	17	17	0·45	..	..	..	32	30	0·58	..	..	..	..	..	..	..
3rd K. O. Hussars..	51	65	3·68	4	1	3	146	96	7·31	3	1	1	1	..	..	..
17-8 Royal Artillery	1	1	0·01	..	..	..	2	..	..	..	..	..	..	..	..	..
2-17 Regiment	75	126	5·2	..	..	..	91	93	3·1	8	..	..	3	1	1	3

The health of the women and children was good. 4 deaths among the women took place in 3rd K. O. Hussars, one from heart disease and 3 from other causes. Of the 11 deaths among the children, 3 took place in the 3rd Hussars and 8 in the 2-17th Regiment

Infectious Disease.

In 3rd K. O. Hussars the only cases of disease requiring isolation have been those of conjunctivitis among women and children.

They were treated in wards by themselves in the Hospital and were of a mild description and readily amenable to treatment. The only diseases treated in 2-17 Regiment during the year have been measles and opthalmia which were epidemic among the children.

Look Hospital.

During the year 1877 there has been a very marked decrease amounting to nearly one-half both of primary and secondary syphilis among the men as compared with 1876. This is satisfactory. On the other hand there has been a considerable increase in number of admissions from gonorrhœa, the cause of which is not apparent as the number of admissions for this disease among the registered prostitutes in 1877 is lower than in 1876.

The following table shows the number of admissions into Hospital from venereal diseases among the British Troops at Mhow during each month of the year 1877 :—

Corps.	Diseases.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
R/B. R. H. A. ..	Gonorrhœa	1	2	4	..	5	3	2	3	3	6	4	3	36
	Syphilis Primary	2	..	..	1	1	..	..	..	1	..	..	..	5
	Syphilis Secondary	..	..	1	1	2	1	..	..	.	1	1	..	7
	Total ..	3	2	5	2	8	4	2	3	4	7	5	3	48
3rd K. O. Hussars ..	Gonorrhœa	3	3	3	5	..	4	5	1	2	2	2	..	30
	Syphilis Primary	..	1	..	..	1	..	2	..	1	3	..	..	8
	Do. Secondary	1	2	..	..	1	..	3	2	4	1	..	2	16
	Total ..	4	6	3	5	2	4	10	3	7	6	2	2	54
18/8th and 17/8 R. A.	Gonorrhœa	1	1	..	..	..	1	1	..	..	..	2	..	6
	Syphilis Primary	..	..	..	..	..	..	..	..	..	..	..	..	..
	Do. Secondary	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total ..	1	1	..	..	..	1	1	..	..	..	2	..	6
2/17th Regt. ..	Gonorrhœa	4	8	2	7	9	4	13	10	7	9	5	12	95
	Syphilis Primary	2	1	..	2	4	5	3	3	2	3	2	1	28
	Do. Secondary	..	1	..	1	..	..	..	..	.	..	1	..	3
	Total ..	6	10	2	10	13	9	21	13	9	12	8	13	126
	Grand Total ..	14	19	10	17	23	18	34	19	20	25	17	18	234

Civil Population.

The following table shows the civil population residing in the Cantonment of Mhow, its area, and the births, and deaths that occured in it in 1877 :—

Civil Population.	Area in square miles.	Average Population per square miles.	Cholera.	Small-pox.	Fevers.	Bowel Complaints.	Injuries.	All Other Causes.	Total.	Cholra.	Small-pox.	Fevers	Bowel Complaints	Injuries.	All Other Causes.	Total.	Births.	Ratio per 1,000 of Population.
22,792	6·50	3,506·46	1	15	230	28	11	311	596	0·04	0·66	10·09	1·23	0·48	13·65	26·15	788	34·58

Income in 1877 ... ...Rs. 109,656 15 10
Expenditure in 1877 ... ... ,, 98,135 2 2

New works
(1) New Dhurumsala.
(2) New Beef Salughter Yard,
(3) 2 New roads to Railway,
(4) Gokoolgunj road.
(5) Enlarging market Chubootras.
(6) 2 New Toll Tax Chowkies.
(7) 3 New Latrines.
(8) New road from Khundwa Road to Library,

The Registration area for prostitutes being restricted to the cantonment, the surrounding villages afford a convenient retreat for women of this class who object to Lock Hospital regulations, though it is difficult to name any particular village. The Indore Durbar, however, professes that no women of this class reside in their villages.

INDORE.

Garrison.

During the year the Detachment 2-17th Regiment with a strength of 103 men was quartered at Indore.

The following table shows the sickness and mortality among the Detachment :—

Corps.	Average Strength.	Average number daily Sick.	Number daily Sick per 1,000 of strength.	Number of deaths.	Died per 1,000 of Strength.	Causes of deaths. Heart diseases.	Causes of Admissions. Fever, Remittent.	Fever, Continued.	Delirium Tremens.	Diarrhœa.	Hepatitis.	Respiratory Diseases.	Phthisis Pulmonalis.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer.	Wounds and Accidents.	All Other Causes.	Total.
Detachment, 2-17th Regiment ..	98	6·91	70·51	1	10·20	1	8	15	4	5	5	15	4	6	34	3	5	12	79	195
							Admitted per 1,000 of Strength.													
							81·7	153·1	40·8	51·0	51·0	153·1	40·8	61·2	346·9	30·6	51·0	122·4	806·1	1,989·8

The detachment was very healthy, one death occurred during the year. 195 admissions took place in 1877, against 163 in 1876. Diseases caused by drink have been numerous, 21 cases in all. 4 men were admitted with delirium tremens.

Women and Children.

The following table shows the average strength, and the sickness and mortality among the women and children :—

Corps.	Women. Average Strength.	Number of Admissions.	Average Number of daily Sick.	Deaths.	Children. Average Strength.	Number of Admissions.	Average number, daily Sick.	Deaths.	Causes of Deaths. Convulsions.
Detachment, 2-17th Regiment ...	6	6	0·02	...	3	3	0·22	1	1

The health of the women and children has been good. The admissions on the sick list (there being no hospital) have been for trifling causes. One child died from convulsions.

NEEMUCH.

Garrison.

During the year the following troops were quartered at Neemuch :—

Corps.	E-2 R. A.	Detachment 68th Regiment.	Total.
Strength	155	294	449

Climate.

The climate of Neemuch which is agreeable and on the whole cooler than some of the other stations of the Presidency, has been mild throughout the year. It remained cool until the end of April, when it began to get warm, and the highest temperature of 107° (one degree lower than last year) was reached in June. The average highest and lowest temperatures have been lower than the previous year by about 4 degrees, though owing to the scanty rains the hot weather was more prolonged. The nights have, however, been cool with the exception of a few sultry oppressive nights in June. The rain-fall registered only 19·65 inches against 43·37 inches last year, and an average of 35 inches. It rained on 27 days. It was, however, more dis-

tributed throughout the year, there having been rain in 8 months as compared to 5 in 1876. The months of September and October were unusually warm, and the cold weather very late in setting in.

The following table shows the sickness and mortality among the Troops at Neemuch :—

Corps.	Average Strength.	Average number daily Sick.	Number daily Sick per 1,000 of Strength.	Number of Deaths.	Died per 1,000 of Strength	Causes of Admissions. Enteric Fever.	Fever, Intermittent.	Fever, Remittent.	Fever, Continued.	Delirium Tremens.	Dysentery.	Diarrhœa.	Hepatitis.	Spleen Diseases.	Respiratory Diseases.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abcess and Ulcer.	Wounds and Accidents.	All other Causes.	Total.
E-2 Royal Artillery.	153	12·02	78·56	..	..	1	85	..	59	2	1	6	3	..	4	6	10	5	9	29	63	283
						Admitted per 1,000 of Strength.																
						6·5	555·6	..	385·6	13·1	6·5	39·2	19·6	..	26·1	39·2	65·4	32·7	58·8	189·5	411 9	1,849·7
Detachment 68th Light Infantry.	294	12·83	43·64	..	..	..	127	2	64	..	1	23	5	2	16	5	24	3	7	35	77	391
						Admitted per 1,000 of Strength.																
						..	432·0	6·8	217·7	..	3·4	78·2	17·0	6·8	54·4	17·0	81·6	10·2	23·8	119·1	261·9	1,329·9

General Health, E.—2 Royal Artillery.

During last year there were 283 admissions into Hospital and the average number of daily sick was 12·02.

Fevers caused 145 admissions or rather more than half the total number of admissions, ague which shows an increase of 26 cases over 59 of last year is due chiefly to malaria caused by the bund erected across the nullah near the barracks. Febricula and simple continued fever caused 59 cases to 67 of last year, and were chiefly due to chills and intemperance. Only one case of Enteric Fever occurred in a recruit who had just joined from England. He appears to have contracted it while the battery was encamped 3 miles from cantonment for target practice.

Detachment 68th Light Infantry.

The average daily sick this year has been less than for the year 1876, and the admissions for malarial fevers were fewer in number, and the type of fever was very mild and easily amenable to treatment, and there was no death from any disease.

The principal diseases as usual at this station were fevers of an intermittent and malarial type being most prevalent when the subsoil water is highest. The remaining diseases are not worthy of notice.

Invaliding.

Corps.	For Change of Climate.	For Discharge.	Total.	Ratio of Invaliding per 1,000 of Strength. For change of Climate.	For Discharge.	Total	Causes of Invaliding. Hepatitis.	Enteric Fever.	Ague and long service.	Dislocation of Shoulder.
E/2nd Royal Artillery	5	...	5	32·68	...	32·68	2	·1	·1	1
Detachment 68th Light Infantry ...	14	...	14	47·63	...	47·63	...	...	14	...

Women and Children.

The following table shows the average strength and sickness and mortality among women and children in each corps :—

Corps.	Women					Children.			
	Average Strength.	Number of Admissions.	Average number daily Sick.	Deaths.	Causes of Deaths. Cholera.	Average Strength.	Number of Admissions.	Average number daily Sick.	Deaths.
E/ 2nd Royal Artillery ...	15	23	0·52	1	1	24	29	0·68	...
Detachment 68th Light Infantry...	10	9	0·15	...	...	10	10	0·73	...

E.—2 Royal Artillery.

Of a strength of 15 women there have been 23 admissions against 34 in 1876. The chief causes of admissions were 6 for Febricula, 7 for Ague and 5 for Child-birth. One woman was attacked and died in 22 hours with cholera whilst the disease was slightly prevalent in the station.

There were 29 admissions among the children against 38 in 1876. As noticed in last year's report, fevers and eye affections help to make up the greater part of the number.

Detachment 68th Regiment.

The year 1877 has been an unusually healthy one so far as the Detachment is concerned. The admissions for malarial fevers were less than the two preceding years.

Lock Hospital.

26 Prostitutes remained on the register on the 31st December. They are examined once weekly. The number of admissions into Hospital during the year was 182, being 17 less than that of the former year 1876.

The working of the Contagious Disease Act here has proved generally efficient and successful. The attendance has been pretty regular during the year. Punishment by imprisonment was awarded by the Cantonment Magistrate for (occasional) non-attendance at weekly inspections, &c., of Medical Officer. The arrangements for treating the registered women in Cantonment are effectual, but extension of the Rules, in some practical form, to the surrounding villages and Foreign Territory is strongly recommended.

Illicit prostitution is much checked by Police and other Patrols, but Venereal Disease, as elsewhere, will sometimes be brought from or contracted in Foreign Territory, escort duty, the open fields, &c.

The diseases contracted were chiefly mild in character and none whatever were of a virulent type.

The following table shows the admissions into Hospital from venereal diseases among European Troops during each month of the year :—

Corps.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
E/2 Royal Artillery	1	..	1	...	...	2	...	...	...	3	3	...	10
Det. 68th Regiment	4	4	3	...	3	3	3	2	...	...	1	...	23
	5	4	4	...	3	5	3	2	...	3	4	...	33

The following return shows the Civil Population residing in the Cantonment of Neemuch, its area, and the births and deaths, which occurred in it during 1877 :—

Civil Population.	Area in Square Miles.	Average population per square mile.	Number of Deaths.						Ratio per 1,000 of Population.						Births.	Ratio per 1,000 of Population.
			Small-pox.	Fever.	Bowel Complaints.	Injuries.	All other Causes.	Total.	Small-pox.	Fever.	Bowel Complaints.	Injuries.	All other Causes.	Total.		
11,787	4·23	2,786·52	2	110	15	5	69	201	0·17	9·33	1·28	0·42	5·86	17·06	159	13·49

Income ...	...	...	...	...	...	30,636-15-2
Expenditure	...	...	...	...	...	28,000-14-01

New Works.

1. An extensive system of works connected with the drainage of the Sudder Bazar.
2. Covering of wells.
3. Improving culverts on Cantonment Roads, &c.
4. Metalling and consolidating Roads in Cantonment.
5. Constructing latrines for the R. A. followers.
6. Improving Drainage of the Cavalry and Infantry Parade grounds.
7. Constructing new pathway to Church.
8. Constructing new road to Church.
9. Constructing 2 urinals in rear of the 10th N. L. I. Bazar.
10. Deepening wells (progressing).
11. Cutting a drain from the moat in front of the Fort.
12. A large number of young trees planted throughout the Cantonment.
13. Lighting of the Bazar is being improved.
14. Two bunds constructed, one for increasing the water-supply, the other for preventing the drinking water being contaminated.
15. Dismantling and removing old Lines of the Royal Artillery followers at Neemuch.
16. Constructing new lines for the Royal Artillery followers at Neemuch.
17. Erecting a stage in the Ochterlony Bungalow for the use of soldiers, &c.
18. Dismantling the old ruined Buildings in the vicinity of the Ochterlony compound.
19. Improving Boundary Pillars.
20. Removing rank vegetation throughout the Cantonment.
21. Improving drainage near the European Infantry Hospital.
22. Constructing latrine in Bungalow compound, No. 60.
23. Improving Rewra Bund.

NUSSEERABAD.

During the year the following Troops were quartered at Nusseerabad :—

Corps.	G—2 R. A.	68th Regiment.	Total.
Strength	160	485	645

The following table shows the sickness and mortality among the Troops at Nusseerabad :—

Corps.	Average Strength.	Average number daily Sick.	Number of daily Sick per 1,000 of Strength.	Number of Deaths.	Died per 1,000 of Strength.	Causes of Deaths in Hospital. Hepatitis.	Respiratory Diseases.	Wounds and Accidents.	All other Causes.	Died out of Hospital.	Suicidal Deaths.	Causes of Admissions. Fever, Intermittent.	Fever, Remittent.	Fever, Continued.	Delirium Tremens.	Dysentery.	Diarrhœa.	Hepatitis.	Spleen Diseases.	Respiratory Diseases.	Rheumatism	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer.	Wounds and Accidents.	All other Causes.	Total.
G.—2nd Royal Artillery.	162	11·0	67.90	2	12·3	..	1	..	..	1	..	47	..	8	2	2	9	13	..	13	..	47	3	26	32	63	265
												Admitted per 1,000 of Strength.															
												290·1	..	49·4	12·3	12·3	55·5	80·3	..	80·3	..	290·1	18·5	160·5	197·5	388·9	1,635·8
68th Regt. Light Infantry.	466	16·94	36 35	10	21·46	1	2	1	2	1	3	128	1	13	2	18	27	16	2	42	12	71	16	18	42	103	511
												Admitted per 1,000 of Strength.															
												274·7	2·2	27·9	4·3	38·6	57·9	34·4	4·2	90·1	25·8	152·3	34·4	38·6	90·1	221·1	1,096·6

General Health of the Men.

G.—2nd Royal Artillery—The health of the Battery has been good, the total number of admissions being 265, as compared with 330 in 1876.

68th Regiment Light Infantry—The health of the Regiment during the year has been good.

Invaliding.

Corps.	For change of Climate.	For Discharge.	Total.	Ratio of Invaliding per 1,000 of Strength. For change of Climate.	For Discharge.	Total.	Causes of Invaliding as Stated.
G/2nd Royal Artillery ...	12	...	12	74·07	...	74·07	General debility.
68th Regiment Light Infantry.	40	2	42	85·88	4·29	90·17	Debility.

Women and Children.

The following table shows the sickness and mortality among the women and children for each corps :—

Corps.	Women. Average Strength.	Number of Admissions.	Average Number Daily Sick.	Deaths.	Causes of Deaths. Phthisis Pulmonalis.	All other Causes.	Children. Average Strength.	Number of Admissions.	Average Number Daily Sick.	Deaths.	Causes of Death. Remittent and continued Fevers	Meningitis and Hydrocephalus.	Tabes Mesenterica.	Diarrhœa.	All other Causes.
G/ 2nd R. A... ..	15	13	..	1	1	..	30	10	..	1	.. 1	.. 1	1	.. 1	.. 2
68th Regt. L. I. ..	40	59	1·84	1	..	1	85	72	2·03	5			..		

G.—2 R. A.

The general health of the women and children has been good. One fatal case occurred. A woman died at Tarraghur from consumption. One child died from scrofulous disease.

68th Regiment.

The general health of the women and children has been good. Malaria is the most frequent cause of disease. Inflammation of the eyelids have at times been rather prevalent, due to glare and carelessness of parents.

Gymnasium.

118 men of the 68th Regiment have passed through the gymnastic training during the year.

Lock Hospital.

There are 55 prostitutes on the register, and they are examined bi-monthly according to order.

There were 116 admissions during the year, and the following are the diseases for which they were admitted :—

Diseases.	Gonorrhœa.	Syphilis Primary.	Leucorrhœa.	Simple Ulcer.	Excoriation.	Inflamation of Labia.	Abscess of Labia.	Total.
Number	21	14	23	43	13	1	1	116

The following Statement shows the number of admissions into Hospital from venereal diseases among the European Troops in each month of the year :—

Corps.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
G-2 Royal Artillery	4	3	8	1	4	5	6	2	2	4	7	2	48
68th Regiment, L. I.	5	6	5	9	5	9	5	6	3	8	7	3	71
	9	9	13	10	9	14	11	8	5	12	14	5	119

The following table gives the area and Civil population residing within the Cantonment limits, and of the number of deaths, and births which occurred during 1877 :—

Civil Population.	Area in square miles.	Average population per square mile.	No. of Deaths.						Ratio per 1,000 of Population.						Births.	Ratio per 1,000 of Population.
			Small pox.	Fevers.	Bowel complaints.	Injuries.	All other causes.	All causes.	Small pox.	Fevers.	Bowel complaints.	Injuries.	All other causes.	All causes.		
18,336	8·00	2292·00	39	264	17	9	344	673	2·13	14·39	0·93	0·49	18·76	36·70	1006	54·86

Income	...	...	...	...	16,645
Expenditure	...	...	...	...	18,916

New Works

Three urinals were built in the 16th Native Infantary Lines at a cost of Rs. 200-11-9 and one was built near the Gunj at a cost of Rs. 44-14-6, and a new Lock Hospital building is under construction.

ASIRGARH.

Garrison.

During the year the Detachment 2-17th Regiment of a strength of 109 men was quartered at Asirgarh.

The following table shows the sickness and mortality among the troops at Asirgarh :—

Corps.	Average Strength.	Average number daily Sick.	Number daily Sick per 1,000 of Strength.	Number of Deaths.	Died per 1,000 of Strength.	Causes of Deaths in Hospital	Causes of Admissions.								
						Heart Disease.	Fever, Continued.	Diarrhœa.	Respiratory Diseases.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer.	Wounds and Accidents.	All other Causes.	Total.
Detachment 2-17th Regiment	36	1·50	41·67	1	27·78	1	6	3	1	3	8	1	1	2	13	38
							Admitted per 1,000 of Strength.								
							166·7	83·3	27·8	83·3	222·2	27·8	27·8	55·6	361·1	1,055·6

General Health of the Men.

The health of the troops has been good. One case of acute rheumatism terminated fatally. No cases of cholera or other epidemic disease have occurred.

Women and Children.

Three women and 2 children belong to the Detachment; their general health has been good, and there have been no deaths.

Water-supply.

A Macnamara Filter was supplied in the month of March for use in hospital, but none in barracks.

The European detachment was removed from Asirgarh in April on account of cleaning one of the tanks to improve the water-supply of the station.

Infectious Disease.

The building for infectious diseases is totally unfit for use; a new one should be built.

The Infectious ward is a small building in a low tower, attached to hospital; it has not been used since arrival of detachment. It is quite unfit for its purposes. There is a window in each of three sides; it has no verandah and is sure to be very hot in the hot weather.

The Civil population residing within cantonment limits amounts to 2,419 persons.

83 births, or 34·31 per 1,000 of population, were registered during the year.

99 deaths, or 40·92 per 1,000 of population, were recorded during the year.

BELGAUM DISTRICT.

BELGAUM.

Garrison.

During the year the following troops were quartered at Belgaum :—

Corps.	C/2 R. A.	2/7 R. F.	Total.
Strength	163	881	1,044

This year is chiefly remarkable in a meteorological point of view from the irregularity of the rain-fall as compared with the average of 10 years, and for its prolongation to the latter end of October. The total for the year however corresponded very closely to the average total of 10 consecutive years. 46·52 inches of rain fell in 97 days of the years.

The following table shows the sickness and mortality among them :—

European Troops.	Average Strength.	Average Number Daily Sick.	Number Daily Sick per 1,000 of Strength.	Number of Deaths.	Died per 1,000 of Strength.	Causes of Deaths in Hospital.						Causes of Admissions.																	
Corps.						Cholera.	Enteric Fever.	Dysentery.	Respiratory Diseases.	Wounds and Accidents.	All other Causes.	Cholera.	Enteric Fever.	Fever Intermittent.	Do. Remittent.	Do. Continued.	Delirium Tremens.	Dysentery.	Diarrhœa.	Hepatitis.	Respiratory Diseases.	Pthisis Pulmonalis.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer.	Wounds and Accidents.	All other Causes.	Total.
												1	5	293	32	4	8	37	76	4	12	3	16	239	6	18	125	214	1,093
												Admitted per 1,000 of Strength.																	
	1,055	59·24	56·15	11*	10·43	1	3	1	1	2	1	0·9	4·8	277·7	30·3	3·8	7·6	35·0	72·0	3·8	11·4	2·9	15·1	226·6	5·7	17·0	118·5	202·9	1,036·0

* This includes 1 Suicidal death, and 1 death out of Hospital.

General Health.

During the first 6 months of the year the health of the troops was generally good; but in October, November, and December owing to the protraction of the rainy season there was a large increase in malarial fevers which contributed nearly one-third of the total admissions. There were also a considerable number of admissions from venereal diseases (239); in all of which (some 5 or 6 cases excepted) the men willingly assisted in endeavouring to identify the woman who had diseased them. In the majority of cases the source of disease was traced to the bazar prostitutes.

Invaliding.

Corps.	For change of climate.	For discharge.	Total.	Ratio of Invaliding per 1,000 of Strength.		
				For change of climate.	For discharge.	Total.
C/2 Royal Artillery ...	4	8	12	24·22	48·45	72·67
2/7 Royal Fusiliers ...	13	34	47	14·61	38·24	52·85
Total ...	17	42	59	16·11	39·81	55·92

Old or worn-out soldiers furnished the bulk of the invalids during the year.

Women and Children.

The following table shows the average strength, the sickness and mortality among the women and children of each corps :—

Women.						Children.								
Average Strength.	No. of Admissions.	Average No. Daily Sick.	Deaths.	Causes of deaths.		Average Strength.	No. of Admissions.	Average No. Daily Sick.	Deaths.	Causes of Deaths.				
				Cholera.	Diarrhœa.					Dentition.	Convulsions.	Diarrhœa.	Anæmia and Atrophy.	All other Causes.
121	161	5·19	5	2	3	309	237	7·28	20	9	2	6	1	2

The health of the women was generally fair. Out of 5 deaths among the women during the year 2 occurred from cholera contracted in the Infantry Patcheries. The remaining 3 deaths occurred from diarrhœa.

The health of the children was also fair. Owing to bad milk supplied to the married families in May and June, many of the children got into a low state of health. They were brought to Hospital presenting the appearance of starvation, and the process of dentition in this condition became highly critical.

Out of 20 deaths among the children 9 deaths from dentition and 6 from diarrhœa were attributed to this cause. Of the remaining 5, 2 deaths occurred from convulsions and 3 from all other causes.

Gymnasium.

355 men of the Royal Fusiliers have passed through the Gymnasium with a very favourable result.

Infectious Diseases.

Two cases of cholera were treated in the infectious disease building during the year.

Lock Hospital.

There are 234 registered prostitutes who are regularly examined once a week. The following are the causes of admissions into Hospital during the year :—

Causes of Admissions.	Primary Syphilis.	Secondary Syphilis.	Excoriations, Ulcer, &c.	Gonorrhœa, Bubo and, abscess of Labia.	Leucorrhœa.	All other Causes.	Total
No.	103	4	275	153	136	38	709

Venereal Diseases.

236 admissions took place among the European troops at this station. 50 admissions (26 from syphilis and 24 from gonorrhœa) took place in C/2 Royal Artillery, and 186 in 2/7 Royal Fusiliers (44 from syphilis and 142 from gonorrhœa).

Civil Population.

The civil population residing within cantonment limits amounted to 4,894, but only 84 births, or 9·81 per 1,000 of population, were registered. 339 deaths, or 69·27 per 1,000 of population, were recorded.

The income is stated to be Rs. 8,676 ; but the expenditure amounted to Rs. 8,998.

Want of sufficient latrines is complained of. Two more carts and two sweepers are also required to clean the Bazar. The roads and drains in the Sudder Bazar require extensive repairs.

BOMBAY DISTRICT.

BOMBAY.

Garrison.

During the year the following troops were quartered at Bombay :—

Corps.	Hd. Quarters late 6th Brigade Royal Artillery.	Half Battalion 66th Foot.	16/8 R. A.	19/8 R. A.	Total.
Strength	7	309	78	78	472

The following table gives the sickness and mortality among the European troops at Bombay :—

Corps.	Average Strength.	Average number daily Sick.	Number daily Sick per 1,000 of Strength.	Number of deaths.	Died per 1,000 of strength.	Causes of Deaths. Fever Intermittent.	Apoplexy.	Dysentery.	Hepatitis.	Heart Diseases	Phthisis Pulmonalis.	All other Causes.	Died out of Hospital.
Royal Artillery	135	13·08	96·89	3	22·22	..	1	..	1	1	..	..	..
Half Battalion 66th Regiment.	282	26·08	92·48	3	10·63	1	1	..	1	..	..	..	..
Colába Depôt	48	5·98	130·07	8	166·05	..	..	1	..	..	4	2	1

Corps.	Causes of Admissions. Fever Remittent.	Fever Remittent.	Fever Continued.	Apoplexy.	Delirium Tremens.	Dysentery.	Diarrhœa.	Hepatitis.	Spleen diseases.	Respiratory Diseases.	Phthisis pulmonalis.	Rheumatism.	Venereal diseases.	Eye diseases.	Abscess and Ulcer.	Wounds and accidents.	All other causes.	Total.
Royal Artillery	..	201	..	21	1	..	6	4	5	..	8	..	..	32	8	11	20	41	353
Admitted per 1,000 of Strength.	..	1488·9	..	155·6	7·4	..	44·5	29·6	37·0	..	59·3	..	..	237·0	22·2	81·5	148·1	303·7	2614·8
Half Battalion 66th Regiment.	1	642	2	25	1	1	11	12	13	2	17	2	11	47	3	14	28	80	812
Admitted per 1,000 of Strength.	3·5	1922·0	7·1	88·7	3·5	3·5	39·0	42·6	46·1	7·1	60·3	7·1	39·0	166·7	10·6	49·6	99·3	283·7	2,879·4
Colába Depôt	..	6	..	3	..	..	8	3	1	1	3	7	3	2	..	..	3	20	69
Admitted per 1,000 of Strength.	..	139·5	..	69·8	..	..	186·0	46·5	23·2	23·2	69·8	162·8	69·8	46·5	..	..	69·8	465·1	1,372·0

General Health.

Royal Artillery (No remarks). Half Battalion 66th Regiment. Good until the month of September when ague became very prevalent. This disease, caused a considerable amount of sickness until the end of October when it began to abate. The great prevalence of this disease is attributed to the mangrove foreshore lying in close proximity to and on the west side of the Barracks. No deaths occurred last year. Three took place this year, one from Apoplexy, one from ague and one from abscess of liver.

Colába Depôt.

The Colába Depôt, with the exception of the permanent staff is composed entirely of men who are coming to or going from India. It is impossible to draw any comparison between the number of admissions, of daily sick, the diseases and deaths of this year with the previous one. The health of the permanent staff is good. Of the 8 deaths that have occurred during the year, 4 were from hereditary predisposition, and two from exposure to the sun while on the passage to India in a Troop ship.

Invaliding.

Corps.	For Change of Climate.	For Discharge.	Total.	Ratio of Invaliding per 1000, of Strength.			Causes of Invaliding as Stated.												
				For Change of Climate.	For Discharge.	Total.	Ague.	Phthisis Pulmonalis.	Melancholia.	Dementia.	Valve Disease of Heart.	Varicose Veins.	Dysentery.	Hepatitis.	Hypertrophy of Spleen.	Inflamation Cellular Tissue.	General Debility.	Fracture.	Manin.
Royal Artillery	5	2	7	37·04	14·81	51·85	..	..	..	..	..	..	..	..	..	..	..	..	..
66th Regiment	14	8	22	49·63	28·36	77·99	1	1	1	2	1	1	2	2	1	1	8	1	..
Colaba Depôt	6	18	24	139·54	418·60	558·14	..	2	3	9	1	..	..	1	..	..	2	1	5

Women and Children.

The following table shows the average strength and the sickness and mortality among the women and children in each corps :—

Corps.	Women.					Children.				
	Average Strength.	Number of Admissions.	Average number daily Sick.	Deaths.	Causes of Deaths: Child-birth and Abortion.	Average Strength.	Number of Admissions.	Average number daily Sick.	Deaths.	Causes of Deaths: Dentition.	Bronchitis and Pneumonia.	Diarrhœa.	All other Causes.
Royal Artillery ...	22	35	0·89	1	1	45	40	1·00	3	1	1	...	1
66th Regiment ...	27	47	1·21	...	...	40	60	1·61	6	...	...	2	4
Colába Depôt ...	9	32	1·18	...	...	15	16	0·26	1	1	...	...	...

Royal Artillery.

The women and children were very healthy. One woman died in child-birth it was case of Placenta Prœvia occurring in a delicate woman. The chief diseases among them were general debility and ague, and among the children ague, bronchitis and debility. The mortality was very small, one death was caused by bronchitis, one from debility in a child newly born and the remaining death resulted from dentition.

66th Regiment.

The health of the women has been good. The disease that caused the greatest amount of sickness was ague. No deaths occurred among the women, and the six deaths that occurred among the children were from the following diseases : 2 from Diarrhœa, 1 from Eczema and 3 from General Debility.

COLABA DEPÔT.

The general health of the women and children attached to the depôt has been excellent There has been no death among the women and only one child died from dentition.

Gymnasium.

11 men of the Royal Artillery and 58 men of the 66th Regiment went through the gymnastic course. No doubt in cases of properly selected young soldiers gymnastic exercises exercise favourable influence on muscular development and health, but slight strains which often result from it are frequently followed by inflamed inguinal glands in this climate.

Civil Population. The Civil Population residing within Cantonment limits amounts to 599 persons.

Birth Rate. No births recorded.

Death Rate. No deaths recorded.

Income in 1877. 1,638-5-4.

Expenditure in 1877. 2,075-9-3.

New Works.

At the recommendation of the Colaba Board of Health the piece of ground on the foreshore South of the Station Hospital was levelled for pitching tents for the isolation of cases of infectious disease arriving by Troopships, &c. Partitions were placed in the whole of the native latrines.

General remarks.

The want of Vehar water for drinking purposes has been much felt in Upper Colaba. The Troops are now supplied by water brought up in carts from the Gun Carriage Factory.

DEOLA'LI DEPOT.

Garrison.

During the year the following troops were quartered at Deoláli :—

Corps.	
Detachment 55th Foot.	
A and E/B R.H.A.	
1 Detachment 1/11th Foot.	
2	,, ,,
1	,, 16/8 R. A.
2	,, ,, ,,
78th Foot.	
17/18th R. A.	
C/D and E/5th R. A.	
100th Foot.	
1 Detachment 109th.	
2	,, ,,
A/5th R. A.	
H. K. and L/5.	
A/C R. H. A.	
2/5th R. A.	
11th Hussars.	
B/5th R. A.	
3 Detachment 109th Foot.	
1 Detachment 2/12th Foot.	
2	,, ,,

Average Strength during the year 11,525.

Climate.

The rain fall during the past and preceding year has been much below the average which is about 35 inches.

The following table shows the sickness and mortality among the troops at Deoláli :—

Corps.	Average Strength.	Average No. daily Sick.	No. daily Sick per 1,000 of Strength.	No. of Deaths.	Died per 1,000 of Strength.	Causes of Deaths. Hepatitis.	Pthisis Pulmonalis.	Atrophy and Anæmia.	All other Causes.	Died out of Hospital.	Causes of Admissions. Fever Intermittent.	Do. Remittent.	Do. Continued.	Delirium Tremens.	Dysentery.	Diarrhœa.	Hepatitis.	Spleen Diseases.	Respiratory Diseases.	Pthisis Pulmonalis.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer.	Wounds and Accidents.	All other Causes.	Total.
Details of British Troops	284	14·66	51·62	9	31·69	1	2	1	3	2	51	8	15	2	30	21	26	3	18	30	31	125	7	11	27	125	530
Admitted per 1,000 of Strength.											179·7	28·2	52·8	7·0	105·6	73·9	91·6	10·6	63·4	105·6	109·2	440·1	24·6	38·7	95·1	440·1	1,866·2

Remarks on general health of the men.

The mortality at Deoláli during the past year has not materially differed from that of the preceding one. In the year 1877 it was 31·69 and in the previous one 30·96 per 1,000 of strength. During the year 1877 the admissions to 1,000 of strength were 1,866·2 and in the previous one 1,424·1. The admissions from fevers were less in 1877 than in 1876, but those for venereal diseases were much greater.

Invaliding.

Corps.	For change of climate.	For discharge.	Total.	Ratio of Invaliding per 1,000 of Strength. For change of climate.	For discharge.	Total.	Causes of Invaliding. Phthisis Pulmonalis.	Chronic Meningitis.	Valve disease of heart.	Aneurism.	Dyspepsia.	Brights disease.
Details of British Troops ...	2	5	7	7·04	17·60	24·64	2	1	1	1	1	1

Women and Children.

The following table shows the average strength and the sickness and mortality among the women and children in the Deoláli Depôt :—

Corps.	Women.					Children.									
	Average Strength.	Number of Admissions.	Average number daily sick.	Deaths.	Causes of death. Child birth and abortion.	Average Strength.	Number of Admissions.	Average number daily sick.	Deaths.	Causes of Deaths. Cholera.	Convulsions.	Tabes Mesenterica.	Diarrhœa.	Croup and Diphtheria.	All other Causes.
Details of British Troops	38	58	1·72	1	1	90	80	3·30	9	3	1	1	1	1	2

The health of the women and children has been on the whole good.

Civil Population. The Civil Population residing within contonment limits amounted to 987.

There were 12 births and 36 deaths recorded during the year equal to a ratio of 12·15 and 36·47 per 1,000 respectively. Income 1,470-11-0, Expenditure 4,756-1-5.

SIND DIVISION.

KURRACHEE.

Garrison. During the year the following troops were quartered at this station :—

Corps.	I-1 R. A.	D-2 R. A.	83rd Regiment.	Total.
Strength...	119	25	563	707

2·20 inches of rain fell in 12 days of the year.

The following table shows the sickness and mortality among them :—

Corps.	I-1, R. A.	D-2 R. A.	83rd Regiment.
Average Strength.	119	25	563
Average Number daily Sick.	5·56	1·53	30·61
Number Daily Sick per 1,000 of Strength.	46·72	61·20	54·37
Number of Deaths.	2	..	7
Died per 1,000 of Strength.	16·81	..	12·44
Causes of Deaths.			
Enteric Fever.	1	..	3
Respiratory Diseases.	..	..	2
Died out of Hospital.	1	..	1
Suicidal Deaths.	..	..	1
Causes of Admissions.			
Small-pox.	1	..	..
Enteric Fever.	4	..	6
Fever Intermittent.	43	26	79
Admitted per 1,000 of Strength.	361·3	1,040·0	140·3
Fever Continued.	3	..	162
Dysentery.	..	1	11
Admitted per 1,000 of Strength.	..	40·0	19·5
Diarrhœa.	1	..	17
Admitted per 1,000 of Strength.	8·4	..	30·2
Hepatitis.	1	..	6
Admitted per 1,000 of Strength.	8·4	..	10·7
Spleen Diseases.	..	..	2
Admitted per 1,000 of Strength.	..	..	3·6
Respiratory Diseases.	6	1	27
Admitted per 1,000 of Strength.	50·4	40·0	48·0
Phthisis Pulmonalis.	..	..	3
Admitted per 1,000 of Strength.	..	..	5·3
Rheumatism.	1	4	16
Admitted per 1,000 of Strength.	8·4	160·0	28·4
Venereal Diseases.	17	8	75
Admitted per 1,000 of Strength.	142·9	320·0	133·2
Eye Diseases.	2	1	5
Admitted per 1,000 of Strength.	16·8	40·0	8·9
Abscess and Ulcer.	7	4	3
Admitted per 1,000 of Strength.	58·8	160·0	5·3
Wounds and accidents.	12	7	48
Admitted per 1,000 of Strength.	100·8	280·0	85·3
All other Causes.	51	7	155
Admitted per 1,000 of Strength.	428·6	280·0	275·3
Total.	149	59	615
Admitted per 1,000 of Strength.	1,252·1	2,360·0	1,092·4

I-1 Royal Artillery.—The general health of the Battery from 1st January to 31st October was good. The number of admissions shows a decrease of 36 as compared with the corresponding 10 months of the previous year. The principal number of admissions are due to diseases caused by climatic influence. There have been four admissions for enteric fever one of which proved fatal. Venereal diseases show an increase of 3 admissions.

General Health.

D-2 Royal Artillery.—The general health of D-2 Royal Artillery since its arrival here the first week in November has been good. In the middle of December the cold season caused many admissions for ague.

83rd Regiment.—The general health of the Regiment during the year has been good, 615 against 398 in 1876 admissions having been recorded with an average strength of 563 against 528 for 1876. The average number of daily sick for 1877 is 30·61 against 19·32 for 1876. The principal diseases are as follows:—241 malarial and continued fevers, 6 enteric fevers of which 3 terminated fatally.

Invaliding.

Corps.	For change of climate.	For discharge.	Total.	Ratio of Invaliding per 1,000 of strength. For change of climate.	For discharge.	Total.	Causes of Invaliding as stated. General debility.	Phthisis pulmonalis.	Bright disease.	Ulcer of leg.	Epilepsy.	Dropsy.
I-1 R. A.	6	1	7	50·4	8·4	58·8	3	1	1	1	1	...
D-2 R. A.	3	...	3	120·0	...	120·0	2	...	...	...	...	1
83rd Regiment	22	2	24	39·0	3·6	42·6	The principal causes are General Debility, Palpitation, Secondary Syphilis, Bronchitis, Diarrhœa, Dysentery, &c.					

Women and Children.

The following table shows the average strength, the sickness and mortality among the women and children for each corps:—

Corps.	Women. Average strength.	Number of admissions.	Average number daily sick.	Deaths.	Causes of Deaths. All other causes.	Children. Average strength.	Number of admissions.	Average number daily sick.	Deaths.	Causes of Deaths. Dentition.	Convulsions.	Anæmia and Atrophy.	All other causes.
I-1 R. A.	12	19	0·59	...	...	29	40	0·93	6	2	1	3	...
D-2 R. A.	3	3	0·08	...	...	5	2	0·03	...	...	...	...	...
83rd Regiment	76	59	1·99	1	1	196	39	1·36	2	...	...	...	2

The general health of the women and children in I-1 and D-2 R. A. has been good. There were 19 admissions among the women and 40 among the children in I-1 R.A. The sickness was mostly due to malaria and climatic causes. No death took place among the women but there have been 6 among the children in I-1 R.A.

83rd Regiment.—The general health of the women and children has been good. As with an average strength of 76 women only 59 admissions have been recorded. Twenty-five of which are from natural causes (child birth) the others mostly due to climatic effects. One daeth resulted from general debility in December. With an average strength of 196 children, 39 admissions are recorded; the principal diseases were from malarious and continued fevers. 2 deaths occurred during the year.

Gymnasium.

83rd Regiment.—Gymnastic exercises have on the whole a decided benefit on the health of the men.

Infectious disease.

I-1 Royal Artillery. There have been four cases of infectious disease, they were treated in the isolated ward situated on the northern end of the male ward.

Lock Hospital.

There are 217 women on the register. Examinations are held twice a month, each prostitute having to attend every 15 days.

There were 214 admissions during the year from the following diseases, syphilis primary 4; syphilis secondary 15; gonorrhœa 8; Leucorrhœa virulent 83; Leucorrhœa 20; bubo 1; ulceration of the womb 67; vaginitis 13 and abscess 3.

The following were the admissions from venereal disease in each European corps during each month of the year :—

Corps.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
I-1st Royal Artillery...	2	3	3	...	2	3	2	2	4	...	...	...	21
D-2nd Do. ...	...	...	..	...	...	...	...	...	...	...	1	4	5
83rd Regiment ...	5	11	12	4	8	12	2	1	8	2	3	6	73
56th Do. ...	9	6	4	..	..	...	...	...	...	...	...	...	19
Ghizree Sanitarium ...	...	1	...	1	...	1	2	1	2	...	1	1	10

There were in all 128 admissions among the troops.

Civil population. The Civil population residing within cantonment limits amounted to 672.

Birth-rate. 10 Births equal to a ratio of 14·88 per 1,000 of population were registered during the year.

Death-rate. There were 9 deaths and the death-rate per 1,000 of population was 13·39.

Income ... ... Rs. 1,020 0 0
Expenditure ... ... Rs. 9,381 9 0

GHIZREE SANITARIUM.

The following table shows the sickness and mortality among the men, at Ghizree Sanitarium :—

Corps.	Average strength.	Average number daily sick.	Number daily sick per 1,000 of strength.	Number of deaths.	Died per 1,000 of Strength.	Causes of deaths		Causes of Admissions.								
						Fever Remittent.	Phthisis Pulmonalis.	Fever intermittent.	Fever Remittent.	Dysentery.	Diarrhœa.	Hepatitis.	Respiratory diseases.	Venereal diseases.	All other causes.	Total.
								41	3	4	3	1	3	11	5	71
Ghizree Sanitarium	40	2·91	72·75	2	50·0	1	1	Admitted per 1,000 of Strength.								
								1,025·0	75·0	100·0	75·0	25·0	75·0	275·0	125·0	1,775·0

General Health. The health of the men sent from Kurrachee and Hyderabad for change has been satisfactory. The number of admissions exceeded those of the previous year by 31. The total number being 71; of those 41 more than half were under the head of ague of the quotidian type, the admissions in last year for the disease being eleven. The average number of daily sick has been 2·91 against 3·77 in 1876. The number of deaths were 2, one from remittent fever and the other from phthisis pulmonalis. The cases of fevers were contracted at other stations and re-admitted under their different headings. There were 11 admissions from venereal diseases.

Invaliding. All men subject for invaliding were remanded to their respective corps.

The following table shows the sickness and mortality among women and children :—

Corps.	Women.				Children.			
	Average strength.	Number of admissions.	Average number daily Sick.	Deaths.	Average strength.	Number of admissions.	Average number daily Sick.	Deaths.
Ghizree Sanitarium	4	4	0·35	...	10	13	1·17	...

The women and children enjoyed good health during the year. One case of measles and 5 of scarlet fever occurred, amongst the latter both of the simple form.

Infectious Disease.

Five cases of scarlet fever and one of measles were treated in the married quarters, there being no female hospital, the above were all children.

HYDERABAD.

Garrison.

During the year the following troops were quartered at Hyderabad:—

Corps.	I. Battery 1st Brigade R. A.	D/2nd Brigade R. A.	Detachment 83rd Regiment.	Total.
Strength	156	162	273	591

3·43 inches of rain fell in 9 days of the year.

The following table shows the sickness and mortality among the troops at Hyderabad :—

Corps.	Average Strength.	Average Number daily sick.	Number Daily Sick per 1,000 of Strength.	Number of Deaths.	Died per 1,000 of Strength.	Causes of Deaths: Wounds and Accidents.	Causes of Deaths: Died out of Hospital.	Causes of Admissions: Small-pox.	Fever Intermittent.	Fever Continued.	Apoplexy.	Delirium Tremens.
I/1 R.A.	12	0·51	42·50	...	...	...	...	...	9	...	...	...
								Admitted per 1,000 of Strength.				
								...	750·0	...	...	...
D/2 R.A.	115	7·33	63·22	1	8·70	1	...	1	145	...	·1	1
								Admitted per 1,000 of Strength.				
								8·7	1260·9	...	8·7	8·7
Detachment 83rd Regiment	292	12·37	42·36	1	3·42	...	1	...	77	5	...	1
								Admitted per 1,000 of Strength.				
								...	263·7	17·1	...	3·4

Corps.	Causes of Admissions: Dysentery.	Diarrhœa.	Hepatitis.	Spleen Diseases	Respiratory Diseases.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer.	Wounds and Accidents.	All other causes.	Total.
I/1 R.A.	...	...	...	...	2	1	4	...	1	1	5	23
	Admitted per 1,000 of Strength.											
	...	...	...	...	166·7	83·3	333·3	...	83·3	83·3	416·7	1916·6
D/2 R.A.	...	6	1	...	3	8	19	2	7	37	78	309
	Admitted per 1,000 of Strength.											
	...	51·2	8·7	...	26·1	69·6	165·2	17·4	60·9	321·7	678·2	2686·9
Detachment 83rd Regiment	5	5	6	3	7	15	42	6	15	28	88	303
	Admitted per 1,000 of Strength											
	17·1	17·1	20·5	10·3	24·0	51.4	143·8	20·5	51·4	95·9	301·4	1037·6

I/ 1st R.A. — The general health of the Battery from 24th November to 31st December 1877 has been good.

D/2nd R. A. — The health of the Battery was bad on account of the prevalence of ague and general debility. There were 309 admissions and 1 death during the year. The death was the result of a fall from a horse.

Detachment 83rd Regiment. — The general health of the Detachment, 83rd Regiment, has been satisfactory. This Detachment was not at this station last year. The number of admissions as compared with those of Detachment 56th Regiment, who occupied the station last year, has decreased very considerably, especially under the head of "ague" for which disease 208 admissions were recorded last year and for this year only 77. One death occurred out of hospital from gun-shot wound penetrating brain (self inflicted).

Invaliding.

Corps.	For change of climate.	For Discharge.	Total.	Ratio of Invaliding per 1,000 of Strength.			Causes of Invaliding.				
				For change of climate.	For Discharge.	Total.	Aneurism of Aorta abdomina	Ague and (General Debility).	Chronic Rheumatism.	Hepatitis and (General Debility).	General Debility
I/1st R. A. ...	...	...	...	...	...	...	...	...	...	...	...
D/2 R. A.	...	2	2	...	17·39	17·39	...	...	...	...	...
Detachment 83rd Regiment ...	8	...	8	27·40	...	27·40	2	1	1	1	3

The following table shows the sickness and mortality among women and children for each corps :—

Corps.	Women.				Children.			
	Average Strength.	Number of Admissions.	Average Number daily Sick.	Deaths.	Average Strength.	Number of Admissions.	Average Number daily Sick.	Deaths.
I/1st R. A.	2	1	0·02	...	3	...	...	...
D/2 R. A.	15	29	0·88	...	23	26	1·47	...
Detachment 83rd Regiment	3	5	0·18	...	8	9	0·58	...

I/1st R. A. — The general health of women and children has been good, there has been only one admission of child-birth since the arrival of the Battery.

D/2nd R. A. — The women and children enjoyed fair health, the prevailing disease amongst the women was ague and amongst the children general debility. No death occurred amongst the women and children.

Detachment 83rd Regiment. — Health of women and children good. A few cases of Ague and Diarrhœa having occurred during the year. No deaths.

Infectious Disease. — There was only one case of small-pox during 10 months in D/2 R. A. which was treated under a tent.

Civil Population. — The Civil population residing within cantonment limits amounts to 1,689.

	Rs.	a.	p.
Income	2,967	7	6
Expenditure	2,783	5	0

General Remarks. — The system of conservancy in the Sudder Bazar has always been bad. Each house had a sink behind it, into which flowed all the refuse water and doubtless often filth. A new system has now been set on foot.

The system for Native latrines in private compounds is bad. Urine soaks into the ground and the land-lords with difficulty are induced to remove old soil and bring in new. The Officers' Lines are badly drained.

The rain water will not properly run off. What does run off flows into hollows below and stagnates. An organized system of conservancy is also required.

ADEN BRIGADE.

ADEN.

Garrison.

During the year the following troops were quartered at this station :—

Corps.	15/8 Royal Artillery.	18/8 Royal Artillery.	1/9 Royal Artillery.	56th Regiment.
Strength	80	75	79	477

6·38 inches of rain fell in 18 days of the year.

The following table shows the strength, sickness and mortality among the Troops during the year ;—

CORPS.	Average Strength.	Average number daily sick.	Number daily sick per 1,000 of Strength.	Number of deaths.	Died per 1,000 of Strength.	Causes of death in Hospital. Cholera.	Apoplexy.	Sunstroke.	Hepatitis.	Abcess of liver.	Respiratory Diseases.	Phthisis Pulmonalis.	All other causes.
1/9 Royal Artillery ...	17	1·20	70·59	1	58·42	...	1	...	...	...	...	...	...
15/8 Royal Artillery ...	20	0·91	45·50	1	50·0	...	...	...	...	1	...	...	...
16/8 Royal Artillery ...	65	1·78	27·38	...	...	...	...	...	...	...	...	...	...
17/8 Royal Artillery ...	67	2·37	35·37	...	...	...	...	...	...	...	...	...	...
18/8 Royal Artillery ...	18	1·06	58·89	1	55·56	1	...	...	...	...	...	...	...
19/8 Royal Artillery ...	65	3·05	46·92	1	15·38	...	1	...	...	...	...	...	...
56th Regiment... ...	525	18·79	35·79	7	13·33	...	...	1	1	...	1	3	1

CORPS.	Causes of Admissions. Cholera.	Small-pox.	Fever Intermittent.	,, Remittent.	,, Continued.	Apoplexy.	Sunstroke.	Delirium Tremens.	Dysentery.	Diarrhœa.	Hepatitis.	Spleen Disease.	Respiratory diseases.	Phthisis Pulmonalis.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer.	Wounds and accidents.	All other Causes.	Total.
1/9 R. A. ..	..	..	15	..	1	1	..	..	..	11	..	..	1	..	..	..	..	..	3	5	37
	Admitted per 1,000 of Strength.																				
	..	..	882·4	..	58·8	58·8	..	..	..	647·1	..	..	58·8	..	..	..	..	..	176·5	294·1	2176·5
15/8 R. A. ..	..	..	16	..	1	..	..	..	3	4	2	..	1	..	..	3	..	..	4	3	37
	Admitted per 1,000 of Strength.																				
	..	..	800·0	..	50·0	..	..	..	150·0	200·0	100·0	..	50·0	..	..	150·0	..	..	200·0	150·0	1850·0

CORPS.	Causes of Admissions—*cotinued*																			
	Cholera.	Small-pox.	Fever Intermittent.	,, Remittent.	,, Continued.	Apoplexy.	Sunstroke.	Delirium Tremens.	Dysentery.	Diarrhœa.	Hepatitis.	Spleen Diseases	Respiratory Diseases.	Phthisis Pulmonalis.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer.	Wounds and accidents.	All other Causes.	Total.
16/8 R. A. ..	..	..	..	..	4	..	..	..	1	2	3	..	1	..	3	12	..	5	10	11	50
	Admitted per 1,000 of Strength.																				
	..	..	..	..	61·5	..	..	..	15·4	30·8	46·2	..	15·4	..	46·2	184·6	..	76·9	153·8	169·2	800·2
17/8 R. A. ..	..	..	1	..	4	..	..	..	1	1	4	..	..	2	3	9	..	1	9	20	55
	Admitted per 1,000 of Strength.																				
	..	..	14·9	..	59·7	..	..	..	14·9	14·9	59·7	..	..	29·8	44·80	134·4	..	14·9	134·4	298·5	820·9
18/8 R. A...	1	..	4	..	..	..	..	..	2	4	..	..	1	..	..	..	1	1	..	7	21
	Admitted per 1,000 of Strength.																				
	55·6	..	222·2	..	..	..	..	..	111·1	222·2	..	..	55·6	..	..	..	55·6	55·6	..	388·8	1166·7
19/8 R. A. ..	..	..	8	..	6	1	..	1	3	3	1	1	3	..	1	6	..	10	15	13	72
	Admitted per 1,000 of Strength.																				
	..	..	123·1	..	92·3	15·4	..	15·4	46·2	46·2	15·4	15·4	46·2	..	15·4	92·3	..	153·8	230·8	200·0	1107·7
56th Regiment.	..	7	51	1	97	..	8	2	5	5	16	1	6	3	5	50	3	24	36	63	388
	Admitted per 1,000 of Strength.																				
	..	13·3	97·1	1·9	184·8	..	15·2	3·8	9·5	9·5	30·5	1·9	11·4	5·8	9·5	95·2	5·8	45·7	68·6	129·5	739·0

1/9 *R. A.*—The health of the battery has been very indifferent, but no reliable data can be formed as regards the effect of the climate of Aden on the men, for although the total number of admissions during this short period was 37, of these 15 were due to ague and 11 to diarrhœa; most of these cases occurred immediately the men disembarked from the I. G. S. Dalhousie, and were due, in a great measure to the men having been exposed to rain and bad weather, after leaving Bombay, to over-crowding on board ship, and possibly to change of diet on landing.

General Health.

15/8 *R. A.*—The health of the battery during the three months has been good.

16/8 *Royal Artillery.* The general health has continued to improve. During the last year the average daily sick was 3·10 and for the 9 months in 1877, it was 1·78.

The health of the Battery from 1st January to 31st October was exceedingly good.

17/8*th Royal Artillery.* The number of admissions and daily sick compared with the same period of last year shows a decided decrease. There were no deaths.

18/8 *R. A.*—The health of battery has been very fair, but the circumstances under which the men have been placed, moving from Mhow to Aden, cause any comparison as to the sickness with the corresponding period of last year to be of little statistical value.

19-8*th Royal Artillery.*—The health of the Battery continued to improve in the 9 months. There were only 72 admissions against 108 in the year 1876. Malarious fevers may be said to have almost disappeared; there were only 8 cases against 36 in 1876.

56*th Regiment.*—The health of the regiment during the year has been exceedingly good.

Invaliding.

Corps.	For change of climate.	For discharge.	Total.	Ratio of Invaliding per 1,000 of Strength. For change of climate.	For discharge.	Total.	Causes of Invaliding as Stated. Palpitation.	Debility.	Abscess of Liver.	Therosis of Femur.	Asthma.	Hepatitis.	Phthisis pulmonalis
1-9th Royal Artillery ...	...	1	1	...	58·42	58·42	...	1	...	...	...	...	...
15-8th Royal Artillery...	...	2	2	...	100·0	100·0	...	...	...	...	...	...	...
16-8th Royal Artillery..	4	...	4	61·54	...	61·54	...	...	1	1	1	1	...
17-8th Royal Artillery..	5	...	5	74·63	...	74·63	1	2	...	...	...	1	1
18-8th Royal Artillery...	1	...	1	55·56	...	55·56	1	...	...	...	...	...	...
19-8th Royal Artillery...	2	...	2	30·77	...	30·77	2	...	...	...	..	...	...
56th Regiment	7	1	8	13·33	1·90	15·23	...	...	...	...	...	...	...

The following table shows the strength, Admissions and the causes of deaths among women and children belonging to each corps :—

Corps.	Women. Average Strength.	Number of Admissions.	Average number daily Sick.	Deaths.	Causes of deaths. Dysentery.	Phthisis Pulmonalis.	Child-birth and abortion.	Children. Average Strength.	Number of Admissions.	Average number daily Sick.	Deaths.	Causes of deaths. Dentition.	Convulsions.	Tabes Mesenterica.	All other causes.
1-9th Royal Artillery	1	6	0·08	...	...	...	...	2	5	0·50	1	...	1	...	...
15-8th Royal Artillery	2	5	0·33	...	...	...	...	3	2	0·34	...	...	...	...	...
16-8th Royal Artillery	4	2	0·07	...	...	...	...	4	...	..	...	...	...	...	...
17-8th Royal Artillery	3	1	0·03	...	...	...	...	3	1	0·01	1	...	...	...	1
18-8th Royal Artillery	1	...	....	...	...	...	...	1	2	0·12	...	...	...	...	...
19-8th Royal Artillery	5	6	0·17	1	1	...	...	9	4	0·08	1	...	...	...	1
56th Regiment	47	47	1·65	3	...	2	1	116	58	2·11	4	1	1	2	...

The general health of the women and children during the year has been good. In the 1st Battery one child died of convulsions. In the 19th Battery two deaths occurred, one woman and one child. In the 56th Regiment there have been 47 admissions for women, and 3 deaths. 58 admissions for children, and 4 deaths. The deaths among the women are due 2 to phthisis pulmonalis and 1 to child-birth. The deaths among the children are due, 1 to convulsions, 1 teething and 2 tabes mesenterica.

Gymnasium. There is a regimental gymnasium on a small scale, attended by voluntary classes. It has produced a good effect.

Lock Hospital There were in all 98 admissions among European troops from venereal diseases, of which 62 were from gonorrhœa, 31 from syphilis primary, and 5 from syphilis secondary. Of these 98 cases, only 50 cases were contracted at Aden.

The following table gives the area and civil population residing within the Cantonment limits, and of the number of deaths, and births which occurred during 1877 :—

Civil Population.	Area in square miles.	Average Population per square mile.	No. of Deaths. Small-pox.	Fevers.	Bowel Complaints.	Injuries.	All other causes.	All causes.	Ratio per 1,000 of population. Small-pox.	Fevers.	Bowel Complaints.	Injuries.	All other causes.	All causes.	Births.	Ratio per 1,000 of population.
19,289	11·69	1,650·04	13	306	236	8	378	941	0·67	15·86	12·23	0·42	19·60	48·78	266	13·79

Income. Rs. 1,072-15-2.

Expenditure. Rs. 4,504-3-10.

New works. None.

General Remarks. The question of a site for a Mahomedan burial-ground is one that must soon be dealt with. All available sites in the Crater and in cantonment limits have been filled up long ago.

At low water a large expanse, nearly half a mile of sand, is uncovered in Front Bay, and in the hot weather, when the fish die in great numbers, a most sickening stench arises therefrom. The only remedy, viz., reclamation, would be probably too costly to undertake.

The Commissariat cattle lines in the Crater are liable to be flooded after even a slight rainfall. There are no boundary walls. No conservancy establishment having been sanctioned as yet, the latrines built for the use of the Commissariat followers are not in use.

SECTION III.

NATIVE ARMY.

Strength at the beginning of the year.

According to the returns kindly forwarded by the Adjutant General of the Army, the strength of the Native Army in this Presidency, on the 1st January 1877, was 25,028 men.

Increase.

During the year, this force was increased by 2,006 men, 1,795 of whom were recruits and 211 were otherwise received.

Decrease.

During the same period a total loss of 2,119 men was sustained, 335 having died, 980 being invalided or pensioned, and 804 having deserted, been discharged or dismissed.

Strength at the close of year.

So that on the 1st January 1878 there were 24,915 men of all arms who were thus distributed.

Artillery.	Artillery Store Lascars.	Sappers and Miners.	Cavalry.	Infantry.	Total.
146	323	477	3,531	20,438	24,915

Annual mean strength.

The average annual mean strength in the returns, for which I am indebted to the courtesy of the Surgeon General, Indian Medical Department, is calculated at 22,561, which is less than the average mean strength of the preceding 5 years by 359. The following table shows the average annual strength and rate of admissions into Hospital, &c., since 1872:—

Years.	Average Strength.	Admissions into Hospital.	Ratio of Admissions per 1,000 of Strength.	Average Number of Daily Sick.	Ratio of Average Daily Sick per 1,000 of Strength.	Number of Deaths in and out of Hospital.	Ratio of Deaths per 1,000 of Strength.
1872 ...	23,345	36,503	1,563·6	1,068	45·7	243	10·4
1873 ...	23,096	28,881	1,250·5	868	37·6	173	7·4
1874 ...	22,758	26,796	1,177·4	835	36·7	178	7·8
1875 ...	22,819	26,157	1,146·3	773	33·9	213	9·3
1876 ..	22,583	26,918	1,191·9	856	37·9	296	13·1
Mean ...	22,920	29,051	1,265·9	880	38·4	221	9·6
1877 ...	22,561	25,130	1,113·9	788	34·9	310	13·7

From this it will be seen that the year 1877, though it compares favourably with 1876 and with the mean as regards the rate of admissions and of the average number of daily sick, yet had the highest death-rate of any of the years in the table.

Admissions into Hospital.

The total number of admissions was 25,130, equal to 1,113·9 men per mille admitted into Hospital during the course of the year.

N.B.—In this report the number of men *admitted* into Hospital during the year 1877 *only* are shown. In the Surgeon General's report those who remained under treatment on the 31st December 1876 are also given. The difference between the total of "Treated" and "Admitted" amounts to 790, and the following statement indicates some of the diseases in which a discrepancy might be thought to exist between the Surgeon General's figures and those here given.

Causes of Admissions.	Number of Admissions as shown in the Sanitary Commissioner's Report.	Number of treated as shown in the Report of the Surgeon General I. M. D.	Difference.
Malarious fevers	10,956	11,240	284
Dysentery	788	807	19
Diarrhœa	782	806	24
Spleen disease	84	93	9
Respiratory diseases	1,128	1,193	65
Scurvy	170	182	12
Rheumatism	1,265	1,316	51
Syphilitic diseases	582	632	50
Eye diseases	1,027	1,040	13
Abscess and ulcer	567	597	30
Wounds and accidents	2,583	2,658	75
Gonorrhœa	342	365	23
All causes	25,130	25,920	790

The principal causes of Admissions will be learnt from the following statement:—

Years.		1872.			1873.			1874.			1875.			1876.			Mean for 5 years.			1877.		
Average Strength ...		23,345			23,096			22,758			22,819			22,583			22,920			22,561		
Average Daily Sick ...		1,068			868			835			773			856			880			788		
Number.	Principal causes of Admissions into Hospital arranged in order of prevalance in 1877.	Number of Admissions.	Ratio per 1,000 of Strength.	Percentage to total Admissions.	Number of Admissions.	Ratio per 1,000 of Strength.	Percentage to total Admissions.	Number of Admissions.	Ratio per 1,000 of Strength.	Percentage to total Admissions.	Number of Admissions.	Ratio per 1,000 of Strength.	Percentage to total Admissions.	Number of Admissions.	Ratio per 1,000 of Strength.	Percentage to total Admissions.	Number of Admissions.	Ratio per 1,000 of Strength.	Percentage to total Admissions.	Number of Admissions.	Ratio per 1,000 of Strength.	Percentage to total Admissions.
1	Fevers (Malarial).	16,681	714·5	45·8	13,584	588·1	47·0	12,196	535·9	45·8	11,407	499·9	43·6	12,167	538·8	45·2	13,207	575·4	45·5	10,956	485·6	43·6
2	Wounds and accidents.	1,736	74·4	4·8	78	3·4	0·3	56	2·5	0·2	3,079	134·7	11·8	2,885	127·7	10·8	1,567	68·5	5·6	2,583	114·5	10·3
3	Rheumatism ...	1,541	66·0	4·2	1,228	53·2	4·3	1,100	48·3	4·1	1,588	69·6	6·7	1,619	71·2	6·0	1,415	61·7	5·1	1,265	56·1	5·0
4	Respiratory diseases.	1,064	45·6	2·9	1,256	54·4	4·4	1,368	60·1	5·1	1,491	65·3	5·7	1,419	62·8	5·3	1,320	57·7	4·7	1,128	50·0	4·5
5	Eye diseases ...	1,001	42·9	2·7	1,024	44·3	3·5	1,006	44·2	3·7	752	33·0	2·9	767	34·0	2·8	910	39·7	3·1	1,027	45·5	4·1
6	Dysentery ...	969	41·5	2·7	645	27·9	2·2	525	23·1	2·0	635	27·9	2·4	726	32·2	2·7	700	30·5	2·4	788	34·9	3·1
7	Diarrhœa ...	743	31·8	2·0	612	26·5	2·1	336	23·6	1·2	706	30·9	2·7	768	34·0	2·9	633	29·4	2·2	782	34·7	3·1
8	Syphilitic diseases.	348	14·9	0·9	338	14·6	1·2	360	15·8	1·3	544	23·8	2·8	453	20·1	1·7	409	17·9	1·6	582	25·8	2·3
9	Abcess and ulcer.	868	37·2	2·4	750	32·5	2·6	643	28·3	2·4	769	33·7	2·9	651	28·9	2·4	736	32·1	2·5	567	25·2	2·3
10	Spleen disease ...	125	5·4	0·3	111	4·8	0·4	103	4·5	0·4	162	7·1	0·6	95	4·3	0·3	119	5·2	0·4	84	3·7	0·3
	Total of these ten causes.	25,076	1,074·2	68·7	19,626	849·7	68·0	17,693	786·3	66·2	21,133	925·9	82·1	21,550	954·0	80·1	21,016	918·1	73·1	19,762	876·0	78·6
	Total from all causes.	36,503	1,563·6	100·	28,881	1,250·5	100	26,796	1,177·4	100	26,157	1,146·3	100	26,918	1,191·9	100	29,051	1,065·9	100	25,130	1,113·9	100·

Tracing the causes of admissions still more closely, we find that during 1877 the following number of men were admitted for the undermentioned diseases :—

Diseases.	Malarious. Fevers.	Diseases returned under heading "All other causes."	Wounds and Accidents.	Rheumatism.	Respiratory diseases.	Eye Diseases.	Dysentery.	Diarrhœa.	Syphilitic Disease.	Ulcer.	Gonorrhœa.	Abscess.	Scurvy.	Small-pox.	Spleen Disease.	Cholera.	Hepatitis.	Phthisis. Pulmonalis.	Heart Disease.	Atrophy and Anæmia.	General Dropsy.	Apoplexy.	All Causes.
No. Admitted .	10,956	4,550	2,583	1,265	1,128	1,027	788	782	582	364	342	203	170	95	84	67	53	37	25	22	4	3	25,130
Ratio per 1,000 of Strength .	435·6	201·6	114·5	56·1	50·0	45·5	34·9	34·7	25·8	16·2	15·2	9·0	7·6	4·2	3·7	2·9	2·4	1·6	1·1	1·0	0·2	0·1	1113·9

And among every 1,000 cases the causes of admissions were on the average in the following proportions :—

Diseases.	Malarious. Fevers.	Diseases returned under heading "All other Causes."	Wounds and Accidents.	Rheumatism.	Respiratory Diseases.	Eye Diseases.	Dysentery.	Diarrhœa.	Syphilitic Diseases.	Ulcer.	Gonorrhœa.	Abscess.	Scurvy.	Small-pox.	Spleen Disease.	Cholera.	Hepatitis.	Phthisis Pulmonalis.	Heart Disease.	Atrophy and Anæmia.	All Causes.
Causes of Admissions.	436	181	103	50	45	41	31	31	23	15	14	8	7	4	3	3	2	1	1	1	1,000

Tracing the number of admissions by seasons, we find that the same remark, which was made in the last report, also holds good this year, viz: that the cold and rainy months are most unfavourable to the Native soldiery, as will be seen from the following table, which indicates the number of admissions from all causes into Hospital and the ratio per 1,000 of strength in each month of the year:—

Months.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Number of Admissions..	2,040	1,604	1,649	1,586	1,910	1,990	2,146	2,156	2,188	2,527	2,683	2,651	25,130
Ratio per 1,000 of strength.	90·4	71·1	73·1	70·3	84·7	88·2	95·1	95·5	97·0	112·1	118·9	117·5	1,113·9

Daily sick rate.

There were 788 men during the year constantly sick in Hospital equal to a rate of 34·9 per 1,000. This number is 91 less than in the preceding 5 years, and 68 less than in 1876, but 15 more than in 1875. The following table indicates the stations in which there was an extremely high rate of daily sickness :—

Stations.	Average Strength.	Daily Sick per 1,000 of Average Strength.	Stations.	Average Strength.	Daily Sick per 1,000 of Average Strength.
Bushire	15	426·7	"Troops Marching"	270	48·1
Bassadore	12	250·0	Jacobabad	1,249	46·2
Sadra	56	139·3	Sholápur	554	44·8
Khelat	102	59·8	Bhuj	684	43·4
Neemuch	902	52·0	Surat	636	42·4
Khor Mucksar	87	49·4	Hyderabad...	636	42·4
Asirgarh	150	48·7	Kirkee	376	40·7

The following Table shows the causes of deaths among the Native Troops since 1872 :—

Years.		1872.			1873.			1874.			1875.			1876.			Mean for 5 years.			1877.		
Average Strength.		23,345			23,096			22,758			22,819			22,583			22,920			22,561		
Avarage Daily Sick.		1,068			868			835			773			856			880			788		
No.	Causes of Deaths.	Number of Deaths.	Ratio per 1,000 of Strength.	Percentage to Total Deaths.	Number of Deaths.	Ratio per 1,000 of Strength.	Percentage to Total Deaths.	Number of Deaths.	Ratio per 1,000 of Strength.	Percentage to Total Deaths.	Number of Deaths.	Ratio per 1,000 of Strength.	Percentage to Total Deaths.	Number of Deaths.	Ratio per 1,000 of Strength	Percentage to Total Deaths.	Number of Deaths.	Ratio per 1,000 of Strength.	Percentage to Total Deaths.	Number of Deaths.	Ratio per 1,000 of Strength.	Percentage to Total Deaths.
1	Respiratory diseases ...	68	2·9	28·0	54	2·3	31·2	50	2·2	28·1	43	1·9	20·2	46	2·04	15·5	52	2·3	24·6	45	2·0	14·5
2	Cholera	19	0·8	7·8	...	.....	.....	...	.....	.....	71	3·1	33·3	53	2·9	17·9	29	1·4	11·8	39	1·8	12·6
3	Fevers (malarial) ...	53	2·3	21·9	30	1·2	17·3	42	2·0	23·6	25	1·1	11·7	45	2·0	15·2	39	1·7	17·9	37	1·7	11·9
4	Diarrhœa	7	0·3	2·9	3	0·1	1·7	5	0·2	2·8	7	0·3	3·3	10	0·4	3·4	6	0·3	2·8	14	0·6	4·5
5	Phthisis Pulmonalis ...	8	0·3	3·3	4	0·2	2·3	4	0·2	2·2	Not procurable.			9	0·4	3·0	*6	0·3	2·7	9	0·4	2·9
6	Dysentery...	9	0·4	3·7	15	0·6	8·7	6	0·3	3·3	2	0·1	0·9	8	0·4	2·7	8	0·4	3·9	6	0·3	2·0
7	Wounds and accidents ...	4	0·2	1·6	5	0·2	2·9	1	.....	0·6	3	0·1	1·4	3	0·1	1·0	3	0·1	1·5	6	0·3	2·0
8	Apoplexy	3	0·1	1·2	4	0·2	2·3	1	.....	0·6	Not procurable.			5	0·2	1·7	*3	0·1	1·5	1	.....	0·3
9	Spleen disease	1	.....	0·4	2	0·1	1·2	...	.....	.....	1	.....	0·9	2	0·1	0·7	1	.....	0·6	1	.....	0·3
10	Atrophy and anæmia ...	3	0·1	1·2	...	.....	.....	1	.....	0.6	Not procurable.			...	.....	.....	*1	.....	0·5	1	.....	0·3
	Total of the ten diseases .	175	7·4	72·0	117	4·9	67·6	110	4·9	61·8	...	.....	.....	181	8·0	61·1	148	6·6	67·8	159	7·1	51·3
	Total from all causes ...	243	10·4	100	173	7·4	100	178	7·8	100	213	9·3	100	296	13·1	100	221	9·6	100	310	13·7	100

* For 4 years only.

The total number of deaths in and out of Hospital during the year amounted to 310 or 14 more than in 1876, and 89 more than the average of the preceding five years. The death-rate equals 13·7 per 1,000 of strength and is the highest in the series.

Ninety-five of the total deaths took place out of Hospital. The causes of these deaths have not been reported, but of the 215 men, who died in Hospital, 39 were suffering with cholera, 45 from respiratory diseases, 37 from malarial fevers and 14 from diarrhœa.

Chief Diseases.

The most important diseases which caused the majority of the admissions into Hospital and of the mortality of the year next claim attention.

Malarial Fevers.

The aggregate number of admissions from malarial fevers in 1877 was 10,956 which is the least number recorded since 1871. This number is less by 1,211 than the year preceding, and by 2,251 than the average number during the last 5 years. These fevers caused 485·6 per 1,000 of strength to seek admission into Hospital during the year. 10,769 were cases of ague and 187 were of the remittent and continued types. The greatest number of admissions from ague took place in September, October, November and December; the maximum being reached in November when 1,478 cases were treated. In March only 582 men were treated from this cause. Remittent fever was chiefly prevalent in May when 32 cases were admitted. In February only 7 cases were treated.

The men on the line of march suffered most severely from ague as the rate among them was 1,003·7 per 1,000 of strength. The Mhow Division also suffered heavily as 713·9 admissions per 1,000 took place from this cause. In the Aden Brigade the lowest rate 190 per 1,000 is found; whilst there were in the Sind Division 567·2; in Poona 566·4; in Bombay 523; in the Northern Division 278·4 and in the Belgaum Division 248·6 admissions per 1,000 of strength.

By Stations and Regiments.

The admissions and deaths from malarial fevers according to stations and Regiments are shown in the next table :—

Stations.	Poona.	Sholápur.	Ahmednagar.	Málegaon.	Ahmedabad.	Bhuj.	Baroda.	Rájkot.	Sadra.	Mhow.	Belgaum.	Kaládgi.	Bombay.	Tanna.	Surat.	Kurrachee.	Jacobabad.	Khelat.	Mhow.
Regiments.	1st Regiment L. C., 5th, 8th, and 26th Regiments N. I.	19th Regiment N. I.	16th Regiment N. I.	13th Regiment N. I.	Left Wing 13th Regiment and 22nd Regiment N. I.	11th Regiment N. I.	9th Regiment N. I.	1st Mountain Battery.	22nd Regiment N. I.	23rd Regiment N. I.	2nd Prince of Wales' Own Grenadier Regiment and 14th Regiment N. I.	Detachment 3rd Regiment N. I. I.	21st Regiment N. I.	Right Wing 7th Regiment N. I.	17th Regiment N. I.	19th Regiment N. I.	1st Regiment Sind Horse.	1st Regiment Sind Horse and No. 2 M. B. Left Half	3rd Regiment S. H. and 30th Regiment L. W. N. I.
Strength	2,106	500	585	427	310	634	556	117	10	490	1,215	119	503	296	636	114	229	102	291
Number of Admissions	1,641	352	92	154	119	208	137	20	9	290	245	60	124	93	688	215	180	127	259
Admissions per 1,000 of Strength..	779·2	704·0	157·3	352·4	383·9	435·7	248·2	170·0	900·0	591·8	201·6	580·0	220·3	314·2	1,081·8	1,880·2	825·3	1,246·1	890·0
Number of Deaths	7	1	2	1	2	2	2	1	1	1	2	2	2	1	3	1	2	2	2
Deaths per 1,000 of Strength ..	3·3	2·0	3·4	2·3	6·4	2·9	3·6	8·6	100·0	2·0	1·6	16·8	3·6	3·4	4·7	8·8	8·7	19·6	6·8

Respiratory Diseases.

The total number admitted from respiratory diseases was 1,128 equal to 50 per 1,000 of strength. This number is less by 291 than in the previous year and by 192 than the average for the last 5 years. During 1877, 45 men died from these diseases being equal to 2·0 per 1,000 of strength. The percentage of deaths to treated in 1877 was 3·99 against 3·24 in 1876.

Cholera.

The admissions from cholera during the year amounted to 67 or 2·9 per 1,000 of strength, 39 of these cases proved fatal. In 1876 there were 112 admissions and 53 deaths from cholera.

By months.

By months the deaths were thus distributed—

January.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1	1	4	3	4	1	3	1	12	5	4	39

By divisions.

and the distribution of these deaths by Divisions will be learnt from the subjoined statement—

Poona Division.	Northern Division.	Mhow Division.	Belgaum Division.	Bombay District.	Sind District.	Aden Brigade.	Troops Marching.	Total.
6	15	2	8	8	...	...	...	39

By Stations and Regiments.

The following table shows the Stations and Regiments in which cases of cholera occurred—

Stations.	Poona.	Sholápur.	Satara.	Ahmednagar.	Mídegaon.	Dhulia.	Ahmedabad.	Baroda.	Sadra.	Indore.	Mahidpur.	Belgaum.	Dharwar.	Kaládgi.	Bombay.	Tanna.	Surat.
Regiments	26th Regiment N. I.	19th Regiment N. I.	4th Regiment or Rifle Corps.	16th Regiment N. I.	13th Regiment N. I.	Detachment Poona Horse.	1st Grenadier Regiment N. I. 22nd Regiment N. I.	9th Regiment N. I. 22nd do. do.	22nd Regiment N. I.	23rd Regiment N. I.	24th Regiment N. I.	2nd Prince of Wales Own Grenadier Regiment N. I.	12th Regiment N. I.	12th Regiment N. I.	Detachment 4th Regiment N. I., 20th and 21st Regiment N. I. and Staff and Details.	7th Regiment N. I.	17th Regiment N. I.
Strength	571	501	375	585	437	105	777	1,015	10	161	300	624	600	43	1,372	296	696
Number of admissions ..	1	1	2	2	3	1	14	13	5	1	1	6	2	2	10	1	2
Number of Deaths.. ..	1	1	1	1	1	1	5	8	2	1	1	5	2	1	5	1	2
Percentage of Deaths to attacks.	100	100	50	50	33·3	100	35·7	61·5	40·0	100	100	83·3	100	50	50	100	100
Ratio of admissions per 1,000 of Strength ..	1·7	2·0	5·3	3·4	6·8	9·5	18·0	12·4	500	6·2	3·3	9·6	3·3	46·5	7·3	3·4	2·1

Diarrhœa.

Seven hundred and eighty-two admissions into Hospital or 34·7 per 1,000 of strength took place during the year from diarrhœa. This number exceeds the average for the last five years by 5·3 per mille. The cases were thus distributed—

Divisions or Districts.								
Poona Division.	Northern Division.	Mhow Division.	Belgaum Division.	Bombay District.	Sind District.	Aden Brigade.	Troops Marching.	Total.
145	114	97	72	101	166	39	48	782

Fourteen men died from this disease. The average number of deaths during the last 5 years was only 6.

Dysentery.

Seven hundred and eighty-eight, or 34·9 men per 1,000 of strength, were admitted during the year from dysentery. This is in excess of the quinquennial mean which is 30·5 per 1,000. Six of these cases proved fatal; 3 occurred in the Poona Division and 1 in the Northern, Bombay, and Sind Divisions respectively.

Small-pox.

Ninety-five cases of small-pox, equal to 4·2 per 1,000 of strength, were admitted during the year from small-pox. As usual it appeared in the cold weather there being 11 admissions in January. The disease attained its maximum intensity in March and April when there were 19 admissions respectively. In May 18 admissions look place. The disease gradually subsided but in September two cases were admitted. In October and November there was no admission from this disease, but in December it again broke out when 5 cases were admitted. Twenty-seven cases or the same number as in 1876 took place among the regiments quartered at Poona: 22 in the Northern Division; 26 in Mhow; 10 in Belgaum; 8 in Bombay and 2 in Sind. There were 4 fatal cases—1 among the sepoys of the 22nd Regiment quartered at Ahmedabad; 2 in the 25th Regiment at Mhow and 1 in the 27th Regiment, N. I, at Hyderabad.

Scurvy.

During 1877, 170 men, equal to a ratio of 7·6 per 1,000 of strength, were admitted into Hospital for scurvy which was especially prevalent during the last 2 months of the year. Forty-eight men having during that time been admitted into Hospital for treatment for this complaint. Among the sepoys of Her Majesty's 6th Regiment N. I. quartered at Aden 30 cases were admitted. In Bombay there were 21 and in Jacobabad 16 admissions—4 cases proved fatal—2 of which occurred among the Staff and Details and one in the 6th and 16 Regiment N. I. quartered respectively at Mhow and Nusseerabad.

Syphilitic Diseases.

Syphilitic affections caused the admission into Hospital of 582 sepoys or 25·8 per 1,000. This rate exceeds the mean of the preceding 5 years by 7·9. By Regiments the highest number (73) was admitted from the 19th N. I. at Sholápur and next to it comes the 12th Regiment at Dharwar with 41 cases; whilst the Regiments stationed at Poona, Bombay, and Hyderabad had a large number of admissions as 90 men were laid up in Poona, 44 in Bombay and 30 in Hyderabad during the year.

Rheumatism.

The total number of admission during the year from rheumatism was 1,265 or 150 less than the mean of the preceding 5 years. The admission-rate equalled 56·1 per 1,000. The following Regiments suffered severely from this disease:—

Regiments.	Stations.	Number of Admissions.
1st Regiment N. I.	Ahmedabad and Sadra	77
6th „ „	Aden and Perim	75
22nd „ „	Ahmedabad and Baroda	66

Two deaths are ascribed to this disease. One occurred in the Detachment of the 21st Regiment N. I. quartered at Bushire in February, and the other among the sepoys of the 28th Regiment at Dwarka in October.

Annual Loss.

The following table shows the total annual loss the Native Army has sustained since 1872 from all causes together with the admission and daily sick rate, by which it will be seen that the total loss in 1877 is the highest of the series:—

Period.	Average Strength.	Average annual ratio per 1,000 of Strength.						
		Admissions into Hospital.	Daily Sick.	Deaths.			Invaliding.	Total Loss.
				Cholera.	Other causes.	Total.		
1872	23,345	1,563·6	45·7	0·8	9·6	10·4	61·4	71·8
1873	23,096	1,250·5	37·6	...	7·4	7·4	63·7	71·1
1874	22,758	1,177·4	36·7	...	7·8	7·8	65·8	73·6
1875	22,819	1,146·3	33·9	3·1	6·2	9·3	61·2	70·5
1876	22,583	1,191·9	37·9	2·4	10·7	13·1	67·7	80·8
Mean	22,920	1,265·9	38·4	1·3	8·3	9·6	64·0	73·6
1877	22,561	1,113·9	35·0	1·8	11·9	13·7	67·9	81·6

Officers.

The average strength of the European Officers attached to the Native Army during the year amounted to 246·8.

There were 195 or 790·1 per 1,000 admissions during the year. The following table shows the principal causes of admissions and the ratios per 1,000 of average strength:—

No.	Causes.	Number of Admissions.	Ratio per 1,000 of Average Strength.
1	Injuries	27	109·4
2	Malarious Fevers	43	174·2
3	Diarrhœa	14	56·7
4	Remittent and Continued Fevers	2	8·1
5	Abscess and Ulcer	8	32·4
6	Debility	8	32·4
7	Dysentery	3	12·1
8	Hepatitis	4	16·2
9	Respiratory	4	16·2
10	Sunstroke	3	12·1
11	Rheumatism	7	28·4
12	Apoplexy	1	4·1
13	Cholera	1	4·1
14	All other causes	70	283·7
	Total ...	195	790·1

Four deaths, equal to 16·2 per 1,000 of the average strength, took place among the European Officers of the Native Army during the year.

Extracts from the Annual Cantonment Reports by Medical Officers.

POONA DIVISION OF THE ARMY.

POONA.

Troops Quartered.

The Native Troops quartered at Poona were Her Majesty's 1st Regiment L. C. (Lancers) 5th, 8th, and 26th Regiments N. I.

Sickness and Mortality.

The following table shows the sickness and mortality among the Troops at Poona during the year 1877 :—

Corps.	1st Regiment Light Cavalry Lancer.	H. M.'s 5th Regiment N. L. I.	H. M.'s 8th Regiment Native Infantry.	H. M.'s 26th Regiment Native Infantry.
Average Strength.	299	606	638	565
Average No. daily sick.	12·9	18·3	24·3	22·7
No. daily sick per 1,000 of Strength.	43·1	30·6	38·2	39·3
Number of Deaths.	2·	5	6	4
Died per 1,000 of Strength.	6·6	8·3	9·2	5·2
Causes of Deaths.				
Fever Intermittent.	1	2	..	..
Do. Remittent and Continued.	..	..	3	1
Respiratory Diseases.	1	..	1	1
Diarrhœa and Spleen.	..	2	..	..
Heart Diseases.	..	1	..	..
Hepatitis.	..	..	1	1
Cholera.	..	..	..	..
All other Causes.	..	..	1	..
Died out of Hospital.	1	..	..	1
Causes of admissions.				
Cholera.	..	..	..	1
Small-pox.	2	5	4	..
Fever Intermittent.	224	553	510	344
Do. Remittent and Continued.	4	1	9	1
Dysentery.	16	12	24	30
Diarrhœa.	4	12	13	17
Hepatitis.	3	..	1	1
Spleen Diseases.	1	1	3	7
Respiratory.	12	11	40	41
Phthisis Pulmonalis.	..	1	..	1
Dropsy.	..	1	..	..
Scurvy.	..	8	4	4
Rheumatism Disease.	5	35	39	31
Venereal Diseases.	19	40	30	38
Eye Diseases.	12	28	32	42
Abscess and Ulcer.	1	6	5	8
Wounds and Accidents.	51	40	116	62
All other Causes.	56	98	121	139
Total.	410	847	951	767
Admitted per 1,000 of Strength.				
Cholera.	..	..	..	1·8
Small-pox.	6·7	8·3	6·3	..
Fever Intermittent.	749·1	912·5	805·6	608·9
Do. Remittent and Continued.	13·3	1·7	14·3	1·8
Dysentery.	53·5	19·8	37·9	53·1
Diarrhœa.	13·3	19·8	20·6	30·1
Hepatitis.	10·0	..	1·5	1·8
Spleen Diseases.	3·3	1·7	4·8	12·4
Respiratory.	40·1	18·2	63·1	72·6
Phthisis Pulmonalis.	..	1·7	..	1·8
Dropsy.	..	1·7	..	..
Scurvy.	..	5·0	6·3	7·1
Rheumatism Disease.	18·7	57·8	61·7	55·8
Venereal Diseases.	63·5	66·0	47·3	67·1
Eye Diseases.	40·1	46·2	50·6	72·5
Abscess and Ulcer.	3·3	9·9	7·8	14·3
Wounds and Accidents.	170·5	66·0	183·3	109·6
All other Causes.	187·3	161·7	191·2	246·0
Total.	1,371·2	1,397·7	1,502·3	1,357·5

General health.

Surgeon Major C. K. Colston, in Medical charge 1st Regiment L. C. Lancers, says that the general health of the 1st Lancers was good up to the end of September, since which date the admissions for ague were unusually large; with an average strength of 299 there were 410 admissions into hospital, or 137 per cent of strength, and the daily sick rate was 12·9. Two fatal cases occurred in hospital, and one out of hospital from heart disease.

Surgeon Major H. Day, M.D., in Medical charge 5th Regiment N. L. I., says :— the health of the 5th Regiment was fair. There is too much ague in Poona for a Regiment to be pronounced thoroughly healthy, splenic cachexia being caused by it. The admissions from ague during the year were 553 against 779 last year. Many of the cases have been severe. There were 5 deaths, four in hospital, and a native officer out of hospital.

Surgeon Major T. Miller, M.D., in medical charge 8th Regiment N. I., remarks :—The general health of the 8th Regiment was fair during the year. A good many of the men have suffered from the effects of Line Building, and seem worn out, and more liable to fever and rheumatic complaints. The dearness of provisions has also had a bad effect on their general health.

Surgeon Major G. Y. Hunter, in medical charge 26th Regiment N. I, remarks : during the first three months of the year the general health of the corps was good, and ague was less prevalent than in the corresponding months of the previous year, but afterwards, as the weather became hotter, sickness increased, and the general health was only fair. The number of admissions during 1877 was 767, against 793 in 1876. The average number of daily sick was 22·7 against 30·2 for 1876. The prevailing diseases were, ague, dysentery, diseases of the respiratory system, rheumatism, eye diseases, and venereal diseases, &c.

Invaliding.

The causes of Invaliding were as follows :—

Corps.	For change.	For discharge.	Total.	Ratio of Invaliding per 1,000 of Strength. For change.	For discharge.	Total.	Causes of Invaliding. Debility and old age.	Impaired vision.	Bronchitis.	Rheumatism.	Chronic Ulceration.	Leprosy.	Weak intellect.	Syphilitic diseases.	Nervous system.	Eye diseases.	Lung diseases.	Stiffness of Right Knee.	Lameness and Scurvy.	Dimness of sight.	Hepatitis chronic.	Debility and lameness.	Worn out.	Worn out and asthma.	All other Causes.
1st Regiment L. C.	12	16	28	40·1	53·5	93·6	13	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5th Do. N. I.	17	39	56	28·1	64·3	92·4	27	1	..	4	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
8th Do. do.	11	30	41	17·4	47·4	64·8	17	..	..	8	..	..	..	4	1	1	..	..	..	..	..	..	..	..	..
26th Do. do.	12	48	60	21·2	84·9	106·1	13	..	4	13	..	..	..	..	..	..	1	6	1	1	1	1	1	1	6

Regimental Lines.

As the Regimental Lines were fully described in the Inspection reports published last year it is unnecessary to describe them in this report.

The Medical Officer of the 5th Regiment draws attention to the condition of Ghaseeram Tank, which, in his opinion, is one of the causes of the prevalence of fever.

KIRKEE.

Troops Quartered.

The Native Troops at Kirkee were the Bombay Sappers and Miners.

Sickness and Mortality.

The following table shows the sickness and mortality among them during the year 1877. :—

Corps.	Average Strength.	Average number daily Sick.	Number daily Sick per 1,000 of Strength.	Number of Deaths.	Died per 1,000 of Strength.	Causes of Deaths. Fever Intermittent.	Dysentery.	Respiratory Diseases.	Heart Diseases.	All other Causes.	Died out of Hospital.
BOMBAY.											
Sappers and Miners ..	376	15·3	40·7	5	13·1	1	1	1	1	1	1

Causes of Admissions,	Fever Intermittent.	Do. Remittent and Continued.	Dysentery.	Diarrhœa.	Hepatitis.	Spleen Disease.	Respiratory Diseases.	Scurvy.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer.	Wounds and Accidents.	All other Causes.	Total.
	160	2	6	16	1	2	10	1	16	14	15	7	66	95	411
Admitted per 1,000 of strength.	425·7	5·3	15·9	42·5	2·6	5·3	26·6	2·6	42·5	37·2	39·9	18·6	175·6	252·9	1,093·2

General Health.

Surgeon Major W. Niven, M.D., in Medical charge Sappers and Miners, says that the general health of the corps was not so good as in former years, owing to the dearness of provisions and their inferior quality on account of the famine which prevailed in this District and the Deccan generally.

The number of admissions was 411, the admissions in 1876 being 169 and 281 in 1875. The average daily sick was 15·3, being nearly double what it used to be in former years. The prevailing diseases were ague and bowel complaints. There were 5 deaths in, and one, out of Hospital. The men who died, were all over 20 years' service with the exception of one.

Invaliding.

The causes of invaliding were as follows:—

Corps.	For change.	For discharge.	Total.	Ratio of Invaliding per 1,000 of Strength. For change.	For discharge.	Total.	Causes of Invaliding. Debility and old ago.	Defective vision.	General debility.	Loss of teeth.	Jaundice.	Varicose Veins.	Night blindness.	Varicose Veins and Leprosy.	Paralysis.	Impairment of mental faculties.	Dysentery.	Bronchitis.	Loss of Voice.	Other causes.
Sappers and Miners.	2	23	25	5·3	61·2	66·5	5	3	2	2	1	1	1	1	1	1	1	1	1	2

Regimental Lines.

The lines of the Sappers and Miners at New Jhansi consists of 16 blocks of pendalls, 4 for each company. They are composed of sun-dried brick and have a stone-plinth and outer verandah wall, faced with burnt brick and pointed with chunam. The blocks are arranged in lines of four, and the front of the lines faces a little to the west of south. The width of the centre street running from front to rear is 60 feet, that of the other streets parallel to this is 30. The width of the main longitudinal street is 88 feet and of the others parallel to it 58 feet. The height of the plinth varies from 2½ feet to 3 inches. The roof is composed of tiles; ventilation is afforded by seven ventilating pipes let into the outer wall of each quarters, about 4 from the ground.

The height of ridge is	...	...	15′ 3″
,, ,,	inner wall	...	9′ 9″
,, ,,	outer wall	...	6′ 9″
,, ,,	doorway	...	5′ 6″

The area of married and single men's rooms is the same, namely 102 feet, and that of the closed verandah is 44. The cubic space is 1,611 cubic feet.

Conservancy.

There are two latrines on the "Crawford Rural System," one for women to accommodate 16, and one for men to accommodate 32. Their distance from the nearest point of the lines is 244 feet in an easterly direction. The filth from the latrines is conveyed in a tank cart to a spot on the other, or Kirkee side of the river. There are bathing places of chunam inside the sepoys' huts and the water is conveyed from them by surface drains. As the main surface drains have not yet been put in hand by the Irrigation Department, there can be said to be no outfall. The conservancy establishment allowed by Government consists of 5 sweepers, 3 men and 2 women; that maintained by the regiment consists of 8 sweepers, 2 men and 6 women.

Water-supply.

The water-supply is obtained from the Kharackwasla Canal by means of pipes. The water is of good quality and abundant in quantity. There is no source of contamination.

SHOLA'PUR.

Troops Quartered.

The native troops at Sholápur were Her Majesty's 3rd Regiment N. I. (Left Wing).

Sickness and Mortality.

The following table shows the sickness and mortality among them during the year 1877:—

Corps.	Average Strength.	Average number daily sick.	Number daily sick per 1,000 of Strength.	Number of deaths.	Died per 1,000 of Strength.	Causes of Admissions.											
						Fever Intermittent.	Dysentery.	Diarrhœa.	Respiratory diseases.	Phthisis Pulmonalis.	Rheumatism.	Venereal diseases.	Eye diseases.	Abscess and Ulcer.	Wounds and Accidents.	All other causes.	Total.
						42	3	1	1	1	2	3	2	2	7	7	71
3rd Regiment, N. I. ...	53	2·0	3·7	...	...	Admitted per 1,000 of Strength.											
						792·5	56·6	18·9	18·9	18·9	37·8	56·6	37·8	37·8	132·1	132·1	1339·6

General Health.

Surgeon R. Bowman, in Medical charge, 3rd Regiment N. I., says that during the short time the Left Wing of the 3rd Regiment N. I. have been at Sholápur the health of the men has been good. The daily average number of sick was 11.1. The admissions amounted to 71, of which 42 were due to ague, a disease that still obtains pre-eminently in this station. No deaths have occurred since the arrival of the Wing.

Regimental Lines.

The regimental lines and water-supply have been described in the Sanitary Commissioner's annual report for 1876.

Civil Population.

The station staff officer states that the civil population residing within cantonment limits amounted to 137.

Birth-rate.

No births were reported during the year.

Death-rate.

Two deaths were registered during the year, equal to a ratio of 14·60 per 1,000 of population.

Income.

Rs. 786.

Expenditure.

Rs. 1,091-11-9.

New Works.

None.

General Remarks.

The station is kept very clean. The Sudder Bazar used to be frequently in a filthy state but is kept cleaner now. The roads in the cantonment are in a bad condition, and require to be repaired in many places. The private compounds are kept very clean. The unused latrines, north of the N. I. lines, are in a filthy condition. They should be either removed entirely or closed up. The bungalows in the old Artillery Lines have fallen into entire disrepair or ruin and are in a filthy state. One or two of them are inhabited by low characters, who by throwing filth and refuse outside them, make them still worse. They are not now within cantonment limits. Trees have not been planted as yet, those planted last year died from want of rain.

SIRUR.

Troops Quartered.

The native troops at Sirur are the Poona Horse.

Sickness and Mortality.

The following table shows the sickness and mortality among them :—

Corps.	Average Strength.	Average number daily sick.	Number daily sick per 1,000 of Strength.	Number of deaths.	Died per 1,000 of Strength.	Causes of deaths	Causes of Admissions.													
						All other Causes.	Fever Intermittent.	Dysentery.	Diarrhœa.	Hepatitis.	Respiratory diseases.	Phthisis Pulmonalis.	Scurvy.	Rheumatism.	Venereal diseases.	Eye diseases.	Abscess and Ulcer.	Wounds and Accidents.	All other Causes.	Total.
							61	2	1	3	4	2	1	12	1	10	1	30	46	174
Poona Horse	319	7·9	24·8	2	6·26	2	Admitted per 1,000 of Strength.													
							191·2	6·2	3·1	9·4	12·5	6·2	3·1	37·6	3·1	31·3	3·1	94·0	144·2	545·4

General Health.

Surgeon A. K. Stewart, in medical charge, Poona Horse, says that the health of the regiment during the past year may be said to have been remarkably good, the number of average daily sick in hospital having been only 7·9, as compared with 10 last year. Total admissions during the year were 174 against 247 in 1876. The numerical average monthly strength of the past year also being slightly greater, 319·1 as compared with 314·5 of 1876. The greatest number of admissions (61) were, as usual, from intermittent fever.

Invaliding.

The causes of invaliding were as follows :—

Corps.	For Change.	For discharge.	Total.	Ratio of Invaliding per 1,000 of Strength.			Causes of Invaliding.			
				For change.	For discharge.	Total.	Rheumatism.	Nervous System.	Old age and Debility.	Defective Vision.
Poona Horse ...	8	18	26	25·1	56·4	81·5	6	4	5	3

Regimental Lines.

The regimental lines were described in the Sanitary Commissioner's anunal report for 1876.

Water-supply.

The water-supply is from the River Goreh and is said to be fairly good, but it is liable to contamination from the obnoxious practice of growing water melons in the river bed both by the inhabitants of Sirur and of the villages higher up, human excreta being more in demand for this culture than other manures. The larger nullahs from the town which notwithstanding the public latrines provided are used to a great extent for purposes of nature by the people of the town fortunately run into the river below the watering places.

Civil Population.

The station staff officer states that the Civil Population residing within cantonment limits amounted to 440.

Birth-rate.

There were 7 births registered during the year equal to a ratio of 15·9 per 1,000 of population.

SATA'RA.

Troops Quartered.

The Native Troops at Satara were composed of a detachment of Her Majesty's 4th N. I. (Rifles).

Sickness and Mortality.

The following table shows the sickness and mortality among them during the year 1877 :—

Corps.	Average Strength.	Average number daily sick.	Number daily sick per 1,000 of Strength.	Number of deaths.	Died per 1,000 of Strength.	Causes of deaths in Hospital.		Causes of Admissions.													
						Cholera.	Respiratory diseases.	Cholera.	Fever Intermittent.	Dysentery.	Diarrhœa	Hepatitis.	Respiratory diseases.	Scurvy.	Rheumatism.	Venereal diseases.	Eye diseases.	Wounds and Accidents.	All other Causes.	Total.
								2	268	5	6	2	18	3	17	35	38	31	64	489
4th Rifles. ..	376	11·4	30·3	2	5·32	1	1	Admitted per 1,000 of Strength.													
								5·3	712·8	13·3	16·0	5·3	47·9	7·9	45·2	93·1	101·1	82·5	170·3	1300·5

General Health.

Surgeon-Major Ross, in medical charge, says that the health of the corps has been good. There were no deaths out of hospital or among the men absent from the Regiment. As stated in former reports, a properly appointed hospital out of the Bazar is urgently needed. Infectious diseases are treated in a separate room, and there is a grass hut to leeward of camp for the reception of cholera cases.

Invaliding.

The causes of invaliding were as follows :—

Corps.	For change of climate.	For discharge.	Total.	Ratio of Invaliding per 1,000 of Strength.			Causes of Invaliding as stated.											
				For change of climate.	For discharge.	Total.	Ague.	Bronchitis.	Syphilis Secondary.	Chronic Rheumatism.	Scurvy.	Hemiplegia.	Defective sight.	Palpitation of the heart.	Dyspepsia.	Laryngitis.	Old age and Debility.	Other causes.
4th Rifle	6	47	53	16·0	125·0	141·0	3	2	5	10	2	1	3	1	1	1	15	3

Regimental Lines.

The Regimental Lines were described in the Sanitary Commissioner's last Annual Report.

Conservancy.

Since March 7th, 1877, Trench latrines with screens of bamboo-matting two in number have been in use but with indifferent results, as the sepoys do not care to work the system or give it a fair trial. Indeed they prefer going into the jungle itself. The lines are distant from the trench latrines, 750 feet. No injury to health or nuisance has been occasioned. There are bathing places inside the sepoys' huts and the refuse water is conveyed from the vicinity of the huts by means of surface drains, some of which communicate with a neighbouring nullah, but to the north of the lines there is no outfall; latrine-pits for children are allowed in front of the married sepoys' quarters.

Water-supply.

The water in use by the sepoys and their families is obtained from four wells in the lines; these dry up in the hot weather, and the supply is then brought from neighbouring wells, such as the one in the Ranee's Garden, distant half a mile, or from the river itself (the Yena) which is still further off. The water is drawn in buckets by the sepoys. It is liable to contamination from vessels dipped therein, Bhisties' buckets and the wind carrying dust, straw, and leaves before it into the wells.

AHMEDNAGAR.

The Native Troops at Ahmednagar were Her Majesty's 15th Regiment, Native Infantry.

Sickness and Mortality.

The following table shows the sickness and mortality among them during the year 1877 :—

Corps.	Average Strength.	Average number daily sick.	Number daily sick per 1,000 of Strength.	Number of deaths.	Died per 1,000 of Strength.	Causes of deaths in Hospital.						Causes of Admissions.													
						Cholera.	Fever Remittent and Continued.	Respiratory diseases.	Atrophy and Anæmia.	All other causes.	Died out of Hospital.	Cholera.	Small-pox.	Fever Intermittent.	Fever Remittent and Continued.	Dysentery.	Diarrhœa.	Hepatitis.	Respiratory diseases.	Rheumatism.	Venereal diseases.	Eye diseases.	Abscess and Ulcer.	Wounds and Accidents.	All other causes.	Total.
H. M.'s 15th Regiment N. I.	585	17·3	29·6	7	11·96	1	2	2	1	1	2	2	4	36	217	36	25	1	9	10	23	75	11	34	60	593
												Admitted per 1,000 of Strength.													
												3·4	6·8	147·0	370·9	61·5	42·7	1·7	15·3	17·0	39·3	128·2	18·8	58·1	102·5	1013·6

Surgeon-Major Burrows, in medical charge of 15th Regiment N. I., remarks:—The general health of the 15th Regiment, N. I., has been good. Two men died out of hospital, one on leave from heart disease, and one from small-pox at Sangamner on detachment duty. The hospital is in good repair throughout. The ventilation is good. As noted last year, the flooring of the ward is of earth which cannot be kept clean. It should be paved. The hospital latrine should be better ventilated and dammered pans are required for use in front of the chulas to collect urine and ablution water, much of which now run on the stone-flooring. The isolation ward in the hospital compound is an efficient building and is in good repair.

General Health.

Invaliding.

The invaliding during the year is shown in the following table:—

Corps.	For change of climate.	For discharge.	Total.	Ratio of Invaliding per 1,000 of Strength.			Causes of Invaliding	
				For change of climate.	For discharge.	Total.	Aged and worn out.	Unfit for Service.
H. M.'s 5th Regiment N. I. ...	6	18	24	10·2	30·6	40·8	12	6

Regimental Lines.

The regimental lines were described in the Sanitary Commissioner's last Annual Report.

Conservancy.

The regimental latrines are to the westward of the lines, distant 260 yards from the nearest building. The tank-cart system is used.

Water-supply.

The water from the Kapurwarree aqueduct, which supplies the lines, has been of good quality, but was not sufficiently abundant during the hot months and early part of the monsoon. The works commenced last year for the purpose of increasing the supply have been continued. Access to the reservoir near the village of Kapurwarree, noticed last year as a possible source of contamination, has been prevented.

MALEGAON.

Troops Quartered.

The native troops at Málegaon were Her Majesty's 13th Regiment N. I.

Sickness and Mortality.

The following table shows the sickness and mortality among them during the year 1877:—

Corps.	Average Strength.	Average Number Daily Sick.	Number daily sick per 1,000 of Strength.	Number of Deaths.	Died per 1,000 of Strength.	Causes of Deaths.				Causes of Admissions.															
						Cholera.	Fever Intermittent.	Phthisis Pulmonalis	Died out of Hospital	Cholera.	Small-pox.	Fever Intermittent.	Fever Remitted and Continued.	Dysentery.	Diarrhœa.	Spleen Diseases.	Respiratory Diseases	Phthisis Pulmonalis.	Scurvy.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer.	Wounds and Accidents.	All other Causes.	Total.
13th Regiment N. I. ...	438	13·7	29·82	3	7·16	1	1	1	1	2	5	147	18	27	21	1	25	2	1	23	5	21	13	2	204	517
										Admitted per 1,000 of Strength.															
										4·6	11·5	336·9	41·3	61·9	48·1	2·3	57·3	4·6	2·3	52·3	11·5	48·1	29·8	4·6	467·6	1,184·7

General health. Surgeon Major W. D. F. Ticehurst, in medical charge, 13th Regiment N. I., says that the general health of the 13th Regiment N. I. during the year has been good.

Invaliding. The causes of invaliding were as follows:—Chronic Rheumatism, chronic bronchitis, Weak eye-sight, old age and debility, and one case of rupture. The number of cases invalided during the year was 30; and 9 were sent for change on sick certificate.

Regimental lines. The huts are clean, and kept in good repair, the accommodation is sufficient. Ventilation imperfectly effected through doorways and roof. The buildings occupied by the Left Wing are the Arsenal, a European Barrack, Gunshed, and other buildings: they are all in a good state of repair, and kept clean; and although a little over-crowded, the ventilation is good. The drainage, natural and good.

Conservancy. The trench system of latrines is in use and works most satisfactorily, the usual number of sweepers are employed to look after the work. The latrines, 2 in number, are situated conveniently near the Lines. The health of the troops does not seem to have suffered or any nuisance to have been occasioned from the trenches. There were no bathing places inside the sepoys' huts, any water there is carried away by the gutters to the surface drains, which mostly run into a nullah, which empties itself at some distance from the lines into the river Moosam. Latrine's pits for children are not allowed. For looking after the trench latrines there are 6 sweepers, viz., 4 men and 2 women; for the Hospital latrine 2 sweepers; for sweeping and keeping clean the Lines 16 sweepers are employed.

Water-supply. The supply of water has been generally sufficient and of good quality, but latterly there has been some scarcity felt owing to the small rain-fall; and it is feared that if rain does not soon fall there will be a water famine. The water from the well is drawn only for drinking and cooking purposes. For washing and bathing the water of the river Moosam is used. The water is drawn in the usual way by bhistees and the sepoys themselves in small buckets made of leather. The wells have walls around them and a pavement, and are well protected from any source of contamination.

Civil population. Lieutenant J. N. Walker, the Superintendent of Bazars, states that the civil population residing within Cantonment limits amounts to 4,267 persons.

Birth-rate. There were 127 births registered during the year, equal to a ratio of 29·76 per 1,000 of population.

Death-rate. 198 deaths were recorded during the year, equal to a ratio of 46·40 per 1,000.

Income. Rs. 3,977.

Expenditure. Rs. 3,419.

New works. None.

General remarks. The station, Sudder Bazar, private compounds, &c., &c., are kept clean.

The planting of trees is general.

ASIRGARH.

Troops. The native troops at Asirgarh consist of a detachment of Her Majesty's 4th Native Infantry (Rifles).

Sickness and Mortality. The following table shows the sickness and mortality among them during the year 1877:—

Corps.	Average Strength.	Average Number Daily Sick.	Number Daily Sick per 1,000 of Strength.	Number of Deaths.	Died per 1,000 of Strength.	Causes of Deaths in Hospital.		Causes of Admissions.														
						Wounds and Accidents.	Died out of Hospital.	Fever Intermittent.	Fever Remittent and Continued.	Dysentery.	Diarrhœa.	Hepatitis.	Respiratory Diseases.	Scurvy.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer.	Wounds and Accidents.	All other Causes.	Total.
								113	2	7	2	1	7	1	9	1	20	9	28	30	230
Detachment 4th Rifles ...	149	7·3	48·8	1	6·6	1	1	Admitted per 1,000 of Strength.														
								758·8	13·3	48·8	13·3	6·6	48·8	6·6	60·2	6·6	133·9	60·2	187·5	200·8	1540·5

General health. Surgeon Wilkins, in medical charge of Garrison Staff and details, remarks that the health of the corps has been very fair. The greatest number of admissions has been, as usual, from malarious fever; and more

have been admitted during the months of September, October, November and December. Eye diseases, of which simple Ophthalmia is the usual form, have also been prevalent during those months. Rheumatism and respiratory diseases prevail in the cold months. The form of ague is usually the Quotidian and Tertian varieties. The quartan variety being comparatively rare. There was one death in hospital from a foreign body being impacted in the œsophagus; and one out of hospital, a case of heart disease in which death was sudden. The defects in the hospital, are several. It is too small and badly ventilated. The light is bad. There is no bath-room, dead house, or convenient room for operating. The measures adopted with regard to infectious diseases are as follows:—In case of cholera, the men attacked are removed to the foot of the hill, where there is a special camping ground: similar precautions are adopted against small-pox. Cases of ophthalmia are put into a small ward, capable of holding 3 cases by themselves. This ward is much too small for these cases, and there has consequently been much overcrowding.

Invaliding.

The invaliding during the year is shown in the following table:—

Corps.	For Change of Climate.	For Discharge.	Total.	Ratio of Invalliding per 1,000 of Strength.			Causes of Invaliding as Stated.			
				For change of climate	For Discharge.	Total	Heart Diseases.	Abdominal Aneurism.	Varicose Veins of both legs.	Long service, old age.
Detachment 4th Rifles N. I.	—	6	6	...	40·3	40·3	3	1	1	1

Regimental Lines.

The Native Lines are situated along the south-western boundary of the fort, and consist of 6 blocks of buildings, 3″ deep. Each block is about 25 yards long and 10 yards broad. They face north and south, and are divided from each other by one central and four other roads running east and west. The width of the central street is 20 feet and that of the cross street 14 feet. The men's houses are built of mud and bamboo, and were at one time used as pendals. They are very old, and are not suited for dwelling houses. The plinth is about a foot in height. They are comparatively dry during the rains, as there is no subsoil water. The roof is tiled with single tiles with the exception of the guard-room, which is double-tiled. The ventilation is very deficient; there being no windows, the only means for the entrance and exit of air is through the door.

Conservancy.

There are two latrines belonging to the Detachment. There is one for males and one for females. They are situated to the south-east of the Lines, and are about 100 yards off. The dry-earth system of conservancy is employed here, and answers admirably. There is a great deficiency in drainage of the Lines. There ought to be pucka-built drains running in front of the houses to meet others at right angles, instead of this there are supposed to be drains dug in front of the huts; but these do not answer the purpose, and are more like cesspools than any thing else. The bathing and other foul water either sinks in to the ground or forms pools in front of the doors, which becomes most unpleasant after a time, if allowed to remain. Children are obliged to use the regimental latrines, and are not allowed to make use of any other place.

Water-supply.

The water-supply used by the native troops for drinking purposes is derived from the Sukkur well, sunk on the Bank of the Sukkur tank. The water filters through natural media into the well from the tank, and is considered good potable water,—though from the analysis made this year, it may not be considered so. But taking the number of admissions into Hospital of those cases which may be deemed to be consequent on the drinking of impure water, it will be found that they are small, and are not attributable to the Sukkur well water, but rather due to climatic influences and injurious food. The water is drawn up by means of iron buckets, and carried away by hand Bheesties, as no cattle are allowed near the well. There are few sources of contamination; and those complained of in my last report are removed. The latrine belonging to the State prisoners is taken away from its old site, and another one, with well rammed floors, is built instead, and in another situation. The Post office is now not used as a dwelling house and the latrines had been closed.

NORTHERN DIVISION OF THE ARMY.

AHMEDABAD.

Troops Quartered.

The Native Troops at Ahmedabad were the 1st and 22nd Regiment N. I.

Sickness and Mortality.

The following table shows the sickness and mortality among them during the year :—

Corps.	Average Strength.	Average number daily Sick.	Number daily Sick per 1,000 of Strength.	Number of Deaths.	Died per 1,000 of Strength.	Causes of Deaths.									Causes of Admissions.															
						Cholera.	Small-pox.	Fever Remittent and Continued.	Diarrhœa.	Hepatitis.	Respiratory.	Heart Disease.	Phthisis Phulmonalis.	All other Causes.	Died out of Hospital.	Cholera.	Small-pox.	Fever Intermittent.	Fever Remittent and Continued.	Apoplexy.	Dysentery.	Diarrhœa.	Hepatitis.	Respiratory Diseases.	Phthisis Phulmonalis.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer.	Wounds and Accidents.	All other Causes.	Total.
1st Regiment N.I...	631	21·49	34·05	6	9·50	1	...	...	1	...	2	1	1	...	6	4	3	221	1	1	15	33	1	49	4	74	10	26	7	53	86	587
																Admitted per 1,000 of Strength.															
																6·3	4·8	350·2	1·6	1·6	23·8	60·7	1·6	77·7	6·3	117·3	15·8	41·2	11·1	83·9	136·3	930·3
22nd Regiment N.I.	569	35.2	61·9	11	19·34	4	1	1	1	1	2	...	...	1	...	10	15	208	1	...	5	23	5	53	...	63	15	143	18	71	80	710
																Admitted per 1,000 of Strength.															
																17·6	26·4	365·7	1·8	...	8·8	40·4	8·8	93·2	...	110·8	26·4	251·4	31·6	124·8	140·6	1,246.2

General Health.

Surgeon H. MacCalman M. D., in Medical charge 1st Grenadier N. I; says that, the health of the Regiment has been very fair. There have been fewer admissions into Hospital than in either of the two preceding years, and the average number of daily sick has been less while the type of disease has seldom been severe. In order of frequency, ague, rheumatic affections, pulmonary complaints have furnished most of the cases treated. The latter were chiefly instances of Chronic Bronchitis occuring in men of considerable service.

Surgeon-major H. A. Lewis in Medical-charge 22nd Regiment N. I. remarks that, the general health of the Regiment during the year has been extremely unsatisfactory. It is evident that the climate of Guzerat after Rájputána is telling on the constitution of the men. Their physique is decidedly below the average. The number of admissions and daily sick has been large when compared with the previous years. The principal causes of admissions were malarial fevers, chiefly ague. Eye diseases were also prevalent, cholera broke out in the Regimental lines on the 27th of October. The last admission was on the 1st December. The disease was throughout of a virulent kind.

Invaliding.

The causes of invaliding were as follows :—

Corps.	For change.	For discharge.	Total.	Ratio of Invaliding per 1,000 of Strength.			Causes of Invaliding.										
				For change.	For discharge.	Total.	Chronic Pulmonary Disease.	Rheumatism.	Debility.	Ranceve Venis.	Defective vision.	Injury.	Fever.	Eye Diseases.	Lung Diseases.	Ulcer.	All other Causes.
1st Regiment N. I. ...	14	50	64	22·2	79·2	101·4	17	12	9	3	2	3	...	...	...	...	4
22nd ,, ...	28	58	86	49·2	102·0	151·2	...	12	35	..	...	...	2	2	6	1	...

Regimental Lines.

1st Regiment N. I.—The lines consist of 34 blocks of Pendalls extending north and south. Each block has a central partition running from end to end, and this is complete from basement to roof. The plinth is very low, and in some places it is almost wanting. The floor is sunk below outside level ground, the slope is but slight, and the channels for storm water are insufficient. The roofs of the houses are composed of bamboos and tiles, and do not show any openings for ventilation. In some cases there are apertures in the walls, but this is the exception.

22nd Regiment N. I.—The Regimental lines are to the north-west of camp. They consist of 16 rows of kucha built huts running N. W. and S. W. These rows are intersected by a street running north and south, dividing them into 32 blocks, each of which has 24 huts or mens' quarters, 12 on each side placed back to back.

Conservancy.

1st Regiment N. I.—The Latrines are placed to the west of the lines and are 4 in number, two for each sex. That for males of the right wing is 240 feet, and that for females 210 feet from the lines corresponding ones for the left wing 95 and 189 respectively. The dry method of removal is carried out, only sand is procurable to mix with the excreta, and disinfectants are not allowed. The latrines are well built and are provided with iron receptacles. It would be better if these floors were paved to prevent saturation of the soil. The filth is removed twice daily to a considerable distance and buried. No nuisance is occasioned by its disposal. In the huts of the married sepoys a corner is set apart for bathing purposes. It is not rendered impermeable to wet. At present the water is conveyed by a covered channel passing underneath the wall into shallow excavations in the streets where young trees have been planted which are too close to the dwellings. Latrine pits for children are not allowed. The conservancy establishment consists of 8 sweepers and one driver for the conservancy cart. These are allowed by Government. In addition, each company maintains two sweepers at its own expense.

22nd Regiment N. I.—There are two pucka built latrines about 100 yards from the rear of the lines, but they are only used during the rains. For the present the trench system is being carried out in the following way. Trenches are made and enclosed at a convenient distance from the lines with sweepers ready to throw in dry earth into them from time to time. No injury to health or nuisance of any kind that I am aware of has been occasioned by this system which was adopted in October last. The bathing places are not inside the huts, but they are erected at the corners of the married men's quarters with open drains to carry away refuse water to trees planted some ten yards in front of the huts. No latrine pits for children are allowed. The conservancy establishment consists of 4 sweepers paid by the Regiment.

Water-supply.

1st Regiment N. I.—There are 4 built wells in the lines and another just outside the Hospital compound. The supply drawn from these sources is ample and unlimited while the quality is very uniform. No analysis has been recorded. Distribution is by hand. There is nothing to prove contamination.

22nd Regiment N. I.—The supply is from numerous wells near the lines. The river Sábármátti is not far off, and its water is used for washing and bathing purposes. The drinking water is obtained from wells. It contains chlorides, but not to any great amount. The quality is considered fair. The water was analysed some few years ago. There is no rule in force for the distribution of water per head. Each man draws as much as he likes. The wells with potable water are covered in, and free from any source of contamination. The mode of drawing is by means of leather buckets.

DEESA.

Troops Quartered.

The Native Troops at Deesa were Her Majesty's 2nd Regiment Light Cavalry and 18th Regiment Native Infantry.

Sickness and Mortality.

The following table shows the sickness and mortality among them during the year 1877:—

Corps.	Average Strength.	Average number daily Sick.	Number daily sick per 1,000 of Strength.	Number of Deaths.	Died per 1,000 of Strength.	Causes of Deaths in Hospital.		Causes of Admissions.													
						Repiratory Diseases.	Died out of Hospital.	Fever Intermittent.	Fever Remittent and Continued.	Dysentery.	Diarrhœa.	Spleen Diseases.	Respiratory Diseases.	Scurvy.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer.	Wounds and Accidents.	All other Causes.	Total.
H. M.'s 2nd Regiment, Light Cavalry	318	7·4	23·2	1	3·1	1	...	52	1	8	2	...	10	1	20	1	11	4	65	35	210
								Admitted per 1,000 of Strength.													
								163·5	3·1	25·2	6·3	...	31·4	3·1	62·9	3·1	34·5	12·6	204·4	110·4	660·4
H. M.'s 18th Regiment Native Infantry ...	612	11·3	1·86	...	...	...	3	104	...	7	10	1	13	5	82	13	22	6	70	106	389
								Admitted per 1,000 of Strength.													
								17·0	...	1·1	1·6	0·2	2·1	0·8	5·2	2·1	3·6	1·0	11·8	17·4	63·4

General Health.

Surgeon Major A. Barry, in Medical charge of 2nd Regiment, Light Cavalry, says that the health of the Regiment, has been very good throughout the year. The average number of days spent in Hospital by each man was eleven. Only one man died in Hospital during 1877; no man died absent from Regiment. The Hospital is excellent in every way; surroundings very satisfactory. There is no contagious disease ward; but the contagious disease ward of the 18th Hospital is used when necessary.

Surgeon Major Riddell, in Medical charge of Her Majesty's 18th Regiment N. I. remarks: —The health of the 18th Regiment N. I. has been good. There were no epidemics, no cholera, no small pox. There were no deaths in Hospital. One man committed suicide by shooting himself. Two died whilst absent on furlough.

Invaliding.

The causes of Invaliding were as follows:—

Corps.	For change of climate.	For discharge.	Total.	Ratio of Invaliding per 1,000 of Strength.			Causes of Invaliding as stated.						
				For change of climate.	For discharge.	Total.	Chronic Rheumatism.	Chronic eye affections	Varicose vein.	Pulmonic disease.	Leprosy.	Old age and debility.	Gun shot wound of hand.
2nd Regiment L. C. ...	1	11	12	3·1	34·5	37·6	2	2	1	...	...	5	1
18th Regiment N. I. ...	...	21	21	...	38·3	38·3	1	3	...	1	1	15	...

Regimental Lines.

Her Majesty's 2nd Regiment, L. C.—No change since last year.

Her Majesty's 18th Regiment, N. I.—Lines old, dilapidated and past repair. Built on the old plan. There are 16 blocks of huts with a S. W. aspect, with huts for Officers (native) in the rear. The site is near the river Bunass and well shaded by fine trees, width of central street 136 feet, of cross streets 75 feet. There are no plinths, on the contrary the floors for the majority are below the out-side surrounding surface. Tiled roofs. Ventilation by doors and tiled roofs. Height to ridge 11 feet. Height of walls 6 feet, doors 6 by 5 feet. Superficial area the same for all viz: 10 by 11 feet. No verandahs, cubic space the same for all about 750 cubic feet. New lines much required.

Conservancy.

Her Majesty's 2nd Regiment, L. C.—Only change since last year under this head is that all bathing and house refuse water is conveyed by a small drain into a plot of ground planted with young trees in front of the enclosures of the family quarters, instead of collecting all sullage into chatties and removing it by puckalls. No latrine pits for children.

Her Majesty 18th Regiment N. I.—In the dry weather 2 latrines, one for each sex, are used in the sandy river bed of the Bunass about 200 yards west of the lines. The trench system is used in the monsoon the latrines are situated on the river bank much nearer the lines. The filth is buried in the river bed. No injury to health or nuisance has been noticed by this disposal of it. There are bathing places inside the married men's huts, the waste water running into a nullah leading to the river-bed. Latrine pits for children not allowed.

Water-supply.

Her Majesty's 2nd Regiment, L. C.—Water supply from three wells in Cavalry Camp, quality excellent and supply ample. The water is drawn by moat.

Her Majesty's 18th Regiment, N. I.—Water is supplied from six wells in the lines, supply sufficient; source springs; amount unlimited. It is drawn by Bheesties, &c., in the usual manner or by those requiring it, and the ordinary means of a distribution are used. There are no sources of contamination, other than wilful defilement.

BHOOJ.

The Native Troops at Bhooj were Her Majesty's 11th Regiment, Bombay Native Infantry.

Sickness and Mortality.

The following table shows the sickness and mortality among them during the year 1877:—

Corps.	Average Strength.	Average Number Daily Sick.	Number Daily Sick per 1,000 of Strength.	Number of Deaths.	Died per 1,000 of Strength.	Causes of Deaths. Fever, Remittent and Continued.	Respiratory Diseases.	All Other Causes.	Died out of Hospital.	Causes of Admissions. Small-pox.	Fever, Intermittent.	Fever, Remittent and Continued.	Dysentery.	Diarrhœa.	Hepatitis.	Spleen Disease.	Respiratory Diseases.	Scurvy.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer.	Wounds and Accidents.	All Other Causes.	Total.
H. M's 11th Regiment N. I.	684·1	29·7	43·4	5	7·3	3	1	1	4	1	296	4	20	11	6	1	69	8	40	13	23	7	100	139	738
										Admitted per 1,000 of Strength.															
										1·5	432·7	5·8	29·2	16·0	8·8	1·5	100·9	11·7	58·5	19·0	33·6	10·2	146·2	203·2	1078·8

General Health.

Surgeon Major Cockell, in medical charge of 11th Regiment, N. I., says:—The 11th Regiment has been healthy up to November 1877, when an attack of fever came on and the number of sick suddenly increased from 105 to 175. These were nearly all intermittent fever cases, caused, I have no doubt, from the prevailing north-east and northerly winds blowing from the direction of the Runn. Twelve inches of rain fell in one week in September, and that amount would sink into the soil of the Runn and cause fever when evaporating. The Regimental Hospital is a first rate one. It is situated most favourably with regard to winds, being sheltered on the north and nort-east from the winds blowing over the Runn after the rains.

Invaliding.

The causes of invaliding are shown in the following table:—

Corps.	For Change of Climate.	For Discharge.	Total.	Ratio of Invaliding per 1,000 of Strength. For Change of Climate.	For Discharge.	Total.	Causes of Invaliding as stated. Chest Disease.	Old Age and Debility.	Scurvy.	Impaired Vision.	Rheumatism.	Fever.	Leprosy.	Disease of the Stomach.	Injury of the Femur.
H. M's. 11th Regiment N. I. ...	11	25	36	16·08	36·55	52·63	9	5	3	3	1	1	1	1	1

Regimental Lines.

The accommodation for the Regiment consists of 8 blocks of Pendalls and two for the followers and bazar. They look north and south, the central street is 194 feet, and the cross streets, or streets between each block of houses, are 80 feet wide. There are no plinths to the houses. The roofs are composed of tiles placed over matting and leaves. The ventilation is through the door and roof, for there are many openings between the tiles.

Conservancy.

There are two pucka built latrines, one north and the other south of the lines, about a quarter of a mile off, from the 1st and 10th block of houses on either side; but they are never used, as Government does not supply conservancy carts for the purpose of removing the filth. The men and women of the regiment use trenches about a quarter of a mile further off, than the latrines, on either side, and fully half a mile from the lines, north and south. The trenches are filled up every night with earth, and when full, fresh ones are dug. No injury to health occurs from this, but the men do not like the trenches and take every opportunity to avoid them when they can. There are bathing places in the married huts only. The children use latrines in front of their lines, and the filth is removed in the morning by the sweepers.

Water supply.

The water-supply of the regiment is good chiefly from 3 sweet water and 5 bitter water wells. The sweet water is of good quality, and when filtered, very good. It has never been analysed, but there appears to be little or no animal matter in it.

Civil population.

The civil population residing within cantonment limits amounts to 991 persons.

Birth-rate.

Eighty-five births, equal to a ratio of 85·77 per 1,000 of population, were registered during the year.

Death-rate.

Twenty-five deaths, equal to a ratio of 25·23 per 1,000, were reported during the year.

Income in 1877 ... Rs. 32-12-10.
Expenditure in 1877 ... Rs. 38- 7- 2.
New works ... None.

General Remarks.

The cleanliness of the station generally is properly attended to. Compounds and bazars are kept in good sanitary condition.

Forty-three holes have been dug and prepared for the reception of trees in several of which young "Neem" trees have been planted.

BARODA.

The native troops at Baroda were Her Majesty's 20 Regiment, Native Infantry.

Sickness and Mortality.

The following table shows the sickness and mortality among them during the year 1877:—

Corps.	Average Strength.	Average Number Daily Sick.	Number Daily Sick per 1,000 of strength.	Number of Deaths.	Died per 1,000 of Strength.	Causes of Deaths. Cholera.	All Other Causes.	Died out of Hospital.	Causes of Admissions. Cholera.	Small-pox.	Fever, Intermittent.	Fever Remittent and Continued.	Dysentery.	Diarrhœa.	Hepatitis.	Spleen Disease.	Respiratory Diseases.	Phthisis Pulmonalis.	Scurvy.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer.	Wounds and Accidents.	All Other Causes.	Total.
H. M's. 20th Regiment N. I.	579·5	23·1	39·9	3	0·52	1	2	8	4	5	177	13	7	30	1	1	10	2	10	13	35	8	36	61	137	550
									Admitted per 1,000 of Strength.																	
									6·9	8·6	305·4	22·4	12·08	51·8	0·17	0·17	17·3	0·34	17·3	22·4	60·4	13·8	62·1	105·3	236·4	947·4

Surgeon H. De. Tatham, in Medical charge of Her Majesty's 20th Regiment Native Infantry, says:—The health of the Regiment appears to have been fairly good during the year.

General Health.

The hospital is clean, well ventilated, and in good repair, and its general hygienic condition good. The quarters for Medical Subordinates are very inferior, being deficient in space, badly ventilated, and cutcha built. The Senior Hospital Assistant has only one small room and a little cook-room; there is no quarter for any other medical subordinate. There is no compound round the hospital. Since the arrival of the regiment at Baroda, only one case of infectious disease (small-pox) has occurred and is being treated in a small disused hut near the hospital, and isolation maintained.

Invaliding.

The causes of invaliding were as follows:—

Corps.	For Change of Climate.	For Discharge.	Total.	Ratio of Invaliding per 1,000 of Strength. For Change of Climate.	For Discharge.	Total.	Causes of Invaliding as stated. Malarial Fever.	Anæmia & Debility.	Phthisis.	Rheumatism.	Scurvy.	Syphilis.	Other Diseases.	Rheumatism, Debility Asthma, Failing Sight and other Disabilities.
H. M's. 20th Regiment N. I.	32	44	76	55·2	75·9	131·1	7	11	4	2	2	1	5	12

Regimental Lines.

The lines consist of 16 blocks of pendalls, facing the south. Width of central street 140 feet, ofcross streets 55 feet; the pendalls are not raised on a plinth; the roofs are tiled; the upper foot of the front wall is left open, thus admitting of ventilation; height to ridge 10 feet, of internal walls in (family huts) 10 feet, of external walls 6 feet, height of doorway 5 feet. Superficial area of married men's huts about 60 square feet, that of single men cannot be calculated, as the pendalls, occupied by single men are not divided into rooms. The cubic space provided for a married man is about 370′. The Native Officers have no separate quarters, and the ends of some of the pendalls are partitioned off for their use. The walls of the pendalls are made of bamboo, in some part plastered over inside with mud; they have no verandahs; each pendall is 180 feet long by 15 wide, and in one of these all the single men of one company, including its proportion of bhisties, hajjams, recruit boys, &c., have to live, and as the number of single men in each company is different, the amount of cubic space per man varies accordingly, but I may confidently state that the amount of superficial space per man is much less than that sanctioned by the Government of India, viz. 70 square feet for each single man and 120 feet for each family and the men are as uncomfortable and discontented as they can well be. The lines are situated at the north-east corner of the general parade ground, in a spot well open to the breeze, but devoid of shade, and infested by white ants, and are not to be compared in respect of comfort and in-

dividual privacy with those of the 22nd Regiment Native Infantry, now vacant, which I strongly recommend the regiment may be allowed to occupy before the advent of the hot season, as from the absence of shade in their present lines, the want of privacy, cramped space, &c., I foresee much discomfort for the men if this is not granted.

Conservancy.

There are two enclosures surrounded by mat screens about a hundred yards to the north of the lines, the trench system of conservancy is in use, new trenches being dug every morning and the filth of the previous day covered up;—no injury to health or nuisance has been observed, but I think that among native troops the trench system must always be practically more or less a failure as there will always be some men who sooner than use them will wander into the surrounding country after dusk and defile the ground in the neighbourhood of camp. There are no bathing places inside the sepoys' huts; bathing is carried on outside the huts and the water soaks into the ground, the drainage of the lines is natural, only the ground on which they are built being slightly elevated. No latrine pits are allowed in front of married sepoys' huts.

Water-supply.

The water supply is derived from four wells, sunk one at each corner of the lines. The water is drawn from the wells in leathern buckets and distributed from mussacks by hand bhisties. I am not aware of any possible source of contamination, except from the above leathern articles and perhaps from the soakage of bathing water.

RAJKOTE.

Troops Quartered.

The Natives Troops quartered at Rajkote were Her Majesty's No. 1 Mountain Battery, 3rd Squadron 2 Regiment L. C., 7th Regiment N. I. (Head Quarter) and 28th Regiment N. I.

Sickness and Mortality.

The following table shows the sickness and mortality among the Troops during the year 1877:—

Corps.	Average Strength.	Average Number Daily Sick.	Number Daily Sick per 1,000 of Strength.	Number of Deaths.	Died per 1,000 of Strength.	Causes of Deaths.					
						Fever, Remittent and Continued.	Dysentery.	Respiratory Diseases.	Phthisis Pulmonalis.	All Other Causes.	Died out of Hospital.
No. 1 Mountain Battery.	117	2·8	23·93	1	8·55	1	..	..	..	..	..
3rd Squadron 2nd Regiment L. C.	137	4·5	3·28	2	1·46	..	1	..	..	1	1
7th Regiment N. I.	306	8·9	28·80	2	6·5	..	..	1	..	1	5
28th Regiment N. I.	519	12·13	24·04	1	1·9	..	..	..	1	..	..

Corps.	Causes of Admissions.															
	Fever, Intermittent.	Fever, Remittent and Continued.	Apoplexy.	Dysentery.	Diarrhœa.	Hepatitis.	Spleen Disease.	Respiratory Diseases.	Phthisis Pulmonalis.	Scurvy.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer	Wounds and Accidents.	All Other Causes.	Total.
No. 1 Mountain Battery.	23	1	..	4	..	1	..	11	..	..	5	1	5	10	2	9	72
Admitted per 1,000 of Strength.	196·62	8·55	:	34·19	:	8·55	:	94·02	:	:	42·74	8·55	42·74	85·47	17·09	76·92	615·40
3rd Squadron 2nd Regiment L. C.	23	..	..	4	..	..	..	4	..	2	7	3	2	13	17	16	91
Admitted per 1,000 of Strength.	167·88	:	:	29·20	:	:	:	29·20	:	14·60	68·30	21·90	14·60	94·89	124·09	116·79	664·23
7th Regiment N. I.	97	..	..	3	2	13	3	11	..	4	21	3	9	2	12	32	212
Admitted per 1,000 of Strength.	316·96	:	:	9·8	6·53	42·48	9·8	35·94	:	13·07	68·62	9·8	29·41	6·53	39·21	104·57	692·81
28th Regiment N. I.	68	2	..	14	5	4	..	17	1	5	29	2	10	17	21	84	279
Admitted per 1,000 of Strength.	13·0	3·9	..	26·9	9·6	7·7	..	32·8	1·92	9·6	55·9	3·9	19·3	32·8	40·5	16 18	537.57

General Health.

Surgeon J. Parker M. D., in Medical charge No. 1 Mountain Battery, says:—The health of this corps has been good during this year. 72 cases were admitted into hospital against 84 of the previous year, the average strength for both periods being identical. Remittent fever was the cause of the only death which took place in hospital.

The same officer remarks that the health of the 3rd Squadron 2nd Regiment L. C. has been good.

Surgeon R. H. Batty, in Medical charge 7th Regiment, N. I., says:—The health of the Head Quarter Wing, Her Majesty's 7th Regiment, has been good.

Surgeon J. Parker, M. D., Officiating Medical charge 28th Regiment N. I., Remarks:—That the general health of this corps for 1877 compares very favourably with that of the previous year. The total admissions into hospital were 279 against 514 for 1876. The admissions from ague were 91 less in 1877 than in the previous year. Rheumatism caused the admission of 19 men against 50 in 1876. One man died in hospital from phthisis pulmonalis.

Invaliding.

The causes of invaliding were as follows :—

Corps.	For Change.	For Discharge.	Total.	Ratio of invaliding per 1 000 of Strength.			Causes of Invaliding.						
				For Change.	For Discharge.	Total.	Chronic Rheumatism.	General debility.	Syphilitic Rheumatism.	Defective Vision.	Sentence of Court-martial.	Diseases of the Eye.	Right Inguinal Hernia.
No. 1 Mountain Battery	1	2	3	8·5	17·0	25·5	1	1	...	...	...	...	...
3rd Squadron 2nd Regiment Native Infantry	2	6	8	14·6	43·8	58·4	...	5	1	...	...	...	...
7th Regiment Native Infantry	7	10	17	22·8	32·6	55·4	...	15	...	1	1	...	...
28th Do.	12	23	35	23·1	44·3	67·4	2	18	...	...	...	2	1

No. 1 Mountain Battery.

Regimental Lines.

The Lines of No. 1 Mountain Battery were built in 1875, and completed in March 1876. They are situated to the south of the Cavalry Lines, and at a short distance from the Bazar (Sudder). To the north of the Lines, and at a distance of 170 yards, is a long pendall, which the drivers occupy.

The Gunners' lines consist of 4 blocks, viz., 2 for married men, and 2 for single. The former are 120 feet in length and 52 in width, and the latter 109 feet in height and 32 feet in width. There are also three smaller houses for the accommodation of native officers. In the Gunners' Lines there are at present accommodated 34 married and 37 single men. In the Drivers' Lines there are 22 married and 27 single men.

3rd Squadron 2nd Regiment N. I.

The lines are built on a plinth of about 1 foot, the roof is formed of jungle wood and bamboo battens and single tiles. The old Lines consist of two large pucka built blocks at the eastern end of the Lines and at right angles to them; each contains three rooms with a superficial area of 600 square feet, and a cubic capacity of 8,000 feet: each room is intended for 12 men. The native officers live in two houses at the end of the new Lines. In the past twelve months trees have been planted along the front of the houses occupied by the married men.

7th Regiment N. I.

The Lines, the size of which does not correspond with that laid down in the standard plan, are divided into 8 sections, four of which contain 96 huts, whilst in the remaining four there are eighty. The regimental bazar consists of two rows of houses, and separates the Lines of the 7th Regiment from those of the Cavalry.

28th Regiment N. I.

The Lines are built on the standard plan as laid down in Section 18, para. 140 of the Regulations for the Bombay Army. There are 8 rows of pendalls running S. W. and N. E. with 4 blocks in each row; each block contains 22 huts, 11 on each side.

No. 1 Mountain Battery.

Conservancy.

There are two latrines, one for men and one for women, about 130 yards distant from the Lines. The filth is taken away in carts to the North of the station, and deposited about a mile distant, and buried. No injury to health or nuisance has been occasioned by its dis-

posal. There are bathing places for women and children in the verandahs of married men's quarters. The single and married men bathe either in wells or in the river to the east of the city of Rájkot. The bathing water is conveyed from the inside of the sepoys' huts by means of pipes running under the plinth.

3rd Squadron 2nd Regiment N. I.

There are two pucka built latrines, one for males and the other for females. The excreta are removed in iron receptacles to pits, nearly a mile distant. There are bathing places in a few of the married men's huts, the water running off by surface drains. There are no latrine pits.

7th Regiment N. I.

There are two latrines, one for males and the other for females. The former contains 19, and the latter 9, seats. The permanent latrines have been preferred to the trench latrine system, as there is no available ground near the Lines, the latter being very near the Civil and Military officers' residences. The rubbish collected from the Lines is removed twice every day to two walled enclosures near each flank of the Lines, and is ultimately buried in pits to the north of, and at some distance from Camp. The filth from latrines is also conveyed to the same spot. The bathing places are in the verandah of the huts, and the water is carried away by kutcha built surface drains. No latrine pits for children are allowed. One sweeper per company is allowed by Government, and 4 are maintained by the regiment.

28th Regiment N. I.

Excreta are removed in iron pans daily to a distance of about half a mile to leeward, and there buried in pits. There are bathing places inside the married men's huts: the water is conveyed by a small covered drain.

No. 1 Mountain Battery.

Water-supply. The water is obtained from wells in the vicinity of the Lines. The wells from not being provided with covers, are, to a certain extent exposed to contamination.

3rd Squadron 2nd Regiment N. I.

Water is procured from wells in vicinity of the Lines. The wells are open to sources of contamination common to all uncovered wells.

7th Regiment N. I.

Drinking water is obtained from wells. The supply is ample, and is free from any present possible source of contamination.

28th Regiment N. I.

Water is obtained from wells. The water-supply of these wells diminishes considerably during the hot season. None of the wells are provided with covers, so any debris which the wind may happen to blow about, is apt to contaminate them. In addition to this source of impurity, well No. VIII. has a large tree growing in close proximity. This is a very fruitful source of pollution, as not only vegetable organic matter furnished by the fallen leaves but also organic matter from an animal source, viz., from the droppings of birds, &c., finds it its way into the well.

Civil population. The Station Staff Officer states that the Civil population residing within Cantonment limits amounted to 403.

Birth-rate. Twenty-four births were recorded during the year, equal to a ratio of 59·55 per 1,000 of population.

Death-rate. Two deaths were registered during the year, equal to a ratio of 4·96 per 1,000 of population.

Income. Rs. 196.

Expenditure. Rs. 48.

New works. None.

The station and private compounds are clean. Many young trees have been planted, and holes are being prepared for others, which will be planted towards the end of the hot weather.

MHOW DIVISION OF THE ARMY.

MHOW.

Troops Quartered.

The native troops at Mhow were Her Majesty's Wing 23rd Regiment N. L. I. and 25th Regiment N. L. I.

Sickness and Mortality.

The following table shows the sickness and mortality among the troops at Mhow during the year 1877 :—

Corps.	Average Strength.	Average Number Daily Sick.	Number daily sick per 1,000 of strength.	Number of Deaths.	Died per 1,000 of strength.	Causes of Deaths.				
						Small Pox.	Fever remittent and continued.	Respiratory Diseases.	All other Causes.	Died out of Hospital.
23rd Regiment N. L. I.	490·2	10·29	20·85	3	6·12	:	1	1	1	2
25th Regiment N. L. I.	430·42	15·90	26·94	2	4·64	2	:	:	:	:

Corps.	Causes of Admissions.														
	Small-pox.	Fever Intermittent.	Fever remittent and continued.	Dysentery.	Diarrhœa.	Hepatitis.	Spleen Disease.	Respiratory Diseases.	Scurvy.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer.	Wounds and Accidents.	All other causes.	Total.
23rd Regiment N. L. I.	5	298	2	7	10	:	3	16	2	34	13	11	27	64	137	629
Admitted per 1,000 of Strength.	10·19	607·52	4·08	14·28	20·39	:	6·12	32·64	4·08	69·36	26·52	22·44	54·99	130·56	279·48	1,183·15
25th Regiment N. L. I.	9	271	1	11	10	1	2	48	:	26	17	21	2	86	103	603
Admitted per 1,000 of Strength.	20·91	629·61	2·33	25·55	23·23	2·33	4·65	99·90	:	60·41	39·49	48·78	4·65	199·80	239·29	1,402·3

General Health.

Surgeon J. Simpson, M.B., in medical charge, 23rd Regiment, N. L. I., says that the health of the regiment during the year has been, on the whole, good. The total number of admissions for the year was less than for the previous year. The months of September and October gave the highest daily average sick, the cause being intermittent fever. Wounds and accidents gave a large number, the chief cause being bad fitting boots, worn over the bare feet. Rheumatic affections gave a large number. There was a marked decrease in the admissions from diarrhœa and dysentery, also respiratory affections this year, compared with last.

Surgeon D. N. Parakh, in medical charge, 25th Regiment, N. L. I., remarks that the health of the corps has been, on the whole, good. The prevailing diseases have been in the order of their frequency, as follows :—Ague, respiratory diseases, as bronchitis, bowel complaints (principally colic), rheumatism, contusions in the shape of shoe-bites, furnished a large number of admissions as usual. The total number of admissions was 603. Nine cases of small-pox occurred during the year. Two deaths occurred in the contagious wards of the hospital from small-pox. One case was admitted into hospital with slight symptoms resembling those of ague, but immediately on the disease showing signs of an approaching eruptive fever, the patient was removed to the contagious wards. The disease was very severe, confluent, and in its course was complicated with pneumonia, which combined with great exhaustion, was the cause of death. The patient had been vaccinated the year before, and had two tolerably well-marked cicatrices on the left arm. He could not say when he caught the disease. The other case was also very severe semi-confluent, and similarly complicated and terminated in the same way. It occurred in the person of a raw recruit just come in to join the regiment from the Konkan. He had been vaccinated, but the 3 cicatrices on each arm were not at all well marked. He caught the disease on the road, but it was not clear from the account he gave where, or how he came by it. The other seven cases recovered, with the exception of one ; all had been protected by vaccination.

Invaliding. The causes of invaliding were as follows:—

Corps.	For change.	For discharge.	Total.	Ratio of Invaliding per 1,000 of Strength. For change.	For discharge.	Total.	Causes of Invaliding. Rheumatism.	Lung disease.	Syphilis.	Scorbutus.	Spleen disease.	Old age and debility.	Total.
23rd Regiment N. I. ...	11	23	34	22·44	46·92	69·36	3	3	1	1	1	14	23
25th Regiment N. I. ...	9	10	19	20·91	23·16	44·14	...	...	...	...	...	...	...

23rd Regiment, N. I.

Regimental Lines. The lines occupied by the native troops consist of 12 rows of 4 blocks of pendalls, running north and south, at the ends of the rows are detached houses for native officers. The width of the central and cross streets are respectively 100 feet, 60 feet and 30½ feet. The huts are not built on a plinth; the roofs are composed of bamboo, supporting single tiles; there is no special arrangement for ventilation. The dimensions of each hut are as follows:—

	Feet	Inches.
Height to ridge	... 14	10
Do. of internal wall	... 8	6
Do. of external wall	... 5	0
Door-way	... 5	0
	Square Feet.	
Superficial area of each hut	... 100	
Do. do. verandah	... 4,037	

There is no difference in the huts occupied by married and single men. Cubic contents of huts about 1,166 cubic feet.

25th Regiment N. L. I.

No changes have been made since last report, save sundry repairs and tile-turning. All the measurements, &c., were submitted in the last report, and they remain the same. The huts are damp and unhealthy during the rains, owing to their being without plinths and not pucka built.

23rd Regiment, N. L. I.

Conservancy. There are 3 permanent latrines, about four hundred yards from the lines to the left rear; they are only used during the rainy season. Trench latrines are in use at other times. When the permanent latrines are in use, the filth is carted away and buried with the other refuse of the cantonment. In some of the huts occupied by married men there are bathing places; the water is conveyed from the hut to the street by a gutter; in a great many cases a tree is planted where the water collects. Latrine pits are not allowed for children. The conservancy establishment allowed, consists of 8 sweepers.

25th Regiment, N. L. I.

The excreta are promptly removed every night to some distance from the lines, and buried in trenches. The pans are kept clean and dry. Powdered earth is used in these latrines. No injury to health or nuisance has been caused by the disposal of the filth in this way. During the rains the permanent latrines are used at other times of the year. The trench system is in use.

23rd Regiment N. L. I.

Water-supply. The water-supply of the native troops is from wells to the north of the Lines. The amount per head is not known, but there seems to be quite enough for the wants of the troops. No analysis has been made during the past year. The water is drawn in the usual way by a leather-bucket or metal-vessel attached to a rope, and is either used on the spot, or carried away to the lines; there is no source of contamination.

25th Regiment, N. L. I.

The water-supply is derived from wells. The amount per head is about one mussuk-full or two ordinary ghadas, which would be about 6 gallons. This is used by a single man for

drinking, cooking and bathing purposes. Married men required about 2 mussuks. Native officers require about two pakhals. Most of the men bathe in the Satair nulla. No analysis of the water was made, and nothing occurred to necessitate a close investigation of its quality, which has been apparently very good. The quantity has been quite sufficient. The Mahomedans draw water by a rope attached to leather-buckets, and these buckets may become a source of water-contamination, even if they are kept very clean, which is not always the case. The Marathas use iron-dhols, and they seem to be cleaner. All the men preserve the drinking water in copper "ghadas."

NEEMUCH.

The native troops at Neemuch were Her Majesty's 3rd Queen's Own Regiment, Light Cavalry, and 10th Regiment, Native Light Infantry.

Sickness and Mortality.

The following table shows the sickness and mortality among them during the year 1877 :—

CORPS.	Average strength.	Average Number Daily Sick.	Number daily sick per 1,000 of strength.	Number of Deaths.	Died per 1,000 of strength.	Causes of Deaths in Hospital, { Hepatitis.	Causes of Admissions. Cholera.	Small-pox.	Fever, Intermittent.	Fever, Remittent and Continued.	Dysentery.	Diarrhœa.	Hepatitis.	Spleen Disease.	Respiratory Diseases.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer.	Wounds and Accidents.	All other causes.	Skin Diseases.	Nervous Diseases.	Total.
H. M's 3rd Queen's Own Regiment, L.C.	322	9·64	29·9	..	..	..	..	3	92	..	9	3	1	..	6	43	6	16	..	95	16	42	8	340
							Admitted per 1,000 of Strength.																	
							..	9·3	285·8	..	28·0	9·3	3·1	..	18·6	133·6	18·6	49·7	..	295·0	49·7	130·4	24·8	1,055·9
H. M's. 10th Regiment, N. L. I.	604	37·5	62·09	1	1·66	1	1	3	872	18	7	18	1	2	18	12	14	12	16	75	86	..	..	1155
							Admitted per 1,000 of Strength.																	
							1·66	4·97	1,443·71	29·80	11·59	29·80	1·66	3·31	29·80	19·87	23·18	19·87	26·49	124·17	142·38	..	..	1,912·2

General Health.

Surgeon Major Mac Dowell, in medical charge of H. M.'s 3rd Queen's Own Regiment L. C., says :—Health of regiment good, no deaths. Daily admissions (average) 9·64; but injuries on parade are numerous. Daily sick 3 per cent. The hospital is only temporarily occupied. It is the old Artillery Hospital. It has been pronounced to be not worth repairing. Two fine Artillery stone barracks are about to be immediately handed over for this regiment and the staff and Civil hospitals combined. Surgeon Major O'Kearney, in medical charge of 10th Regiment N. L. I., states :—The general health has been unsatisfactory, due, chiefly, to the prevalence of malarious fevers still rife in the regiment, which appears not as yet to have shaken off and got rid of the deep and more lasting effects produced by its protracted stay at the highly malarious station of Mehidpur.

Hospital.—The chief and most serious defects have reference to the requirements mentioned in the last year's report, viz., a "contagious disease ward" and a "dead house." Requisitions for the conversion of two of the available auxiliary buildings taken over having long since gone in so that until these latter are ready, all cases of infectious disease have still either to be treated in the adjoining hospital block or in tents, either of which alternatives it is unnecessary to say, are objectionable.

Invaliding.

The causes of invaliding are shown in the following table :—

Corps.	For change of Climate.	For Discharge.	Total.	Ratio of Invaliding per 1,000 of Strength.			Causes of Invalding as Stated.					
				For change of Climate.	For Discharge.	Total.	Malarious Fever and General debility.	Lung Disease.	Hernia.	Injury of Tendo Achillis.	Old Age and General Debility.	Secondary Syphilis.
3rd Queens Own Regiment L. C.	...	...	...	...	...	...	...	...	...	...	...	...
10th Regiment N. L. I.	33	22	55	54·64	36·42	91·06	6	3	1	1	10	1

H. M's. 3rd Queen's Own Regiment L. C.

Regimental Lines.

Site to east of Cantonment. Number of blocks 10, looking north and south. Width of central and cross streets, 1 central street 819 feet wide and 4 parallel ones, 65 feet, and 6 of 21 feet width; pendalls not raised on plinths. Ventilation, through tiled roof, sufficient. There are great differences between the sizes of the houses and court-yards. There are no verandahs, but court-yards, which measure on an average 7 feet.

H. M's. 10th Regiment N. L. I.

Lines.—Situated in about in the centre of Cantonment; running about N. W. and S. E. facing N. E. and S. W.; covering an area of about 67,000 square yards; are divided into 16 and 32 blocks of pendalls for native officers and sepoys, respectively; built of bricks and mud flush with the ground leaving no plinths whatever. These huts are low, narrow, most primitive, and ill constructed dwellings; destitute of suitable space, air, light, and ventilation, &c. The floor is moorum, beaten to a consistence. The roof is of tiles resting on most inferior light bamboo frame work; the latter resting on about 3 inch battens or purlins. There are no rafters whatever, and the entire construction of these buildings, as regards safety to life and health, is most inferior and questionable. Drainage is surface only.

H. M's. 3rd Queen's Own Regiment L. C.

Conservancy.

The ground is too rocky for trench latrines. Each hut, save the bachelors' ones, has a court-yard for the females to bathe in, &c. These purdah women cannot or will not frequent public latrines nor wash-houses. Many of them scarcely emerge from their seclusion at all. Undoubtedly these court-yards for bathing, &c., are better than the alternative, viz., the forcing the women to bathe *inside* the huts, as is too frequently the case in Native Infantry Regiments, partly accounting perhaps for many diseases prevalent amongst native troops. But public latrines and baths would be better if practicable, than either a bathing place inside or in a small court-yard.

H. M's. 10th Regiment N. L. I.

The latrines, one for males, the other for females, formerly belonging to the European barracks, are open and well raised, built of stone and lime, 434 yards N. E. of Lines. The dry-earth conservancy is in use. The filth is daily removed in air tight receptacles on carts and buried about a mile distant in pits and daily covered and disinfected with earth, and far away from all possible sources of contamination of water, &c. Inside the married men's huts are bathing places, but all water is conveyed by open surface drains away from the huts, where the water then either disappears by gravitation or evaporates. The latrine pits for children in front of married sepoys' huts are carefully cleaned daily and supplied with dry earth, &c.

H. M's. 3rd Queen's Own Regiment L. C.

Water-supply.

From flat stone slab covered wells. Parapet walls round the draw-holes have not yet been finished, though frequently applied for by me to prevent filth, washings from bathers and their clothes, &c., being carried down, as they are now. As the rain-fall has only been about 20 inches this year, it follows that in all likelihood most of these wells will also run dry this year and the nullah on the S. W. will be the only source for drinking. It is bunded near the bazar every year, so as to from a tank. This nullah has an affluent from beyond Camp limits at Sew Ghát, where all the filth of bathing and washing outside such Camp limits is done, in foreign territory. Surgeon Major O'Kearney has in consequence recommended that a light earth bund be made across, through which the water from this one filthy affluent can be as it were filtered before it reaches the bazar. The regimental wells, which also probably will run dry, will either be supplemented

by others dug in the bed of or near the banks of the N. E. nullah or the troops will have to move out of Camp to the bank of some river. All washing in nullahs in the Camp above the bunds is strictly forbidden.

H. M's. 10th Regiment N. L. I.

The water-supply is chiefly from dipping wells. These latter are covered and close to and outside the lines. The quality is good and quantity (except perhaps during seasons of drought as this year) unlimited. The mode of drawing and distribution is by mussucks, doles, lotas, &c. Dole dipping is objectionable, but the wells being now covered and well drained, sources of contamination are fairly otherwise reduced to a minimum.

NASSIRABAD.

Troops Quartered.

The native troops quartered at Nassirabad were Her Majesty's 3rd Queen's Own Light Cavalry and 16th Regiment, N. I.

Sickness and Mortality.

The following table shows the sickness and mortality among them during the year 1877 :—

Corps.	Average strength.	Average number daily sick.	Number daily sick per 1,000 of strength.	Number of deaths.	Died per 1,000 of strength.	Causes of Deaths.			Causes of Admissions.													
						Respiratory diseases.	Scurvy.	Died out of Hospital.	Small-pox.	Fever Intermittent.	Dysentery.	Diarrhœa.	Hepatitis.	Spleen Diseases.	Respiratory diseases.	Scurvy.	Rheumatism.	Venereal diseases.	Eye diseases.	Abscess and Ulcer.	Wounds and Accidents.	All other Causes.	Total.
H. M's 3rd Q. O. Light Cavalry.	114	3·0	26·7	..	..	..	..	..	..	46	4	3	2	..	1	5	1	9	6	1	14	26	118
									Admitted per 1,000 of Strength.														
									..	403·3	35·1	26·3	17·5	..	8·8	43·8	8·8	78·8	52·6	8·8	122·7	227·8	1,034·5
H. M's 16th Regiment N. I.	653	19·2	29·3	3	4·6	2	1	1	3	339	1	20	..	1	16	3	49	13	39	3	71	128	686
									Admitted per 1,000 of Strength.														
									4·59	519·4	1·53	30·6	..	1·5	24·5	4·6	75·1	19·9	59·8	4·6	108 8	196·1	1,051·0

Remarks on General Health.

Surgeon Kiernander, in medical charge, 3rd Queen's Own Light Cavalry, says that the health of the Corps has been very good indeed. There was a daily average of 3·04 sick, most of the admissions into hospital being from ague and contusions. There were no deaths during the year either in or out of Hospital.

16th Regiment, N.I.—The health of the Corps has been exceedingly good. There were about one-half the admissions of last year when there were one hundred men and over in hospital suffering from fever. There was very little severe sickness and only 3 deaths in hospital, two from pneumonia and one from scurvy. One death occurred out of Hospital at Delhi.

Invaliding.

The causes of Invaliding were as follows :—

Corps.	For change.	For discharge.	Total.	Ratio of Invaliding per 1,000 of Strength.			Causes of Invaliding.					
				For change.	For discharge.	Total.	Long service.	Chronic Bronchitis.	Chronic Rheumatism.	Defective Eye Sight.	Defective Vision.	Lameness by Guineaworm.
3rd Q. O. L. Cavalry... ...	...	1	1	....	8·7	8·7	1	...	....	....	...	...
16th Regiment N.I.	6	29	35	9·19	44·43	53·62	14	4	5	4	1	1

Regimental Lines.

3rd Queen's Own Light Cavalry.—There have been no changes in the regimental lines during the year except that trees are being planted in the lines.

16th Regiment, N.I.—The only changes in the lines in 1877 have been in the building of urinals which has removed a great nuisance, namely the saturation of the ground round the huts with urine and the abolition of cesspools; this has been done by planting trees in their place in front of the huts and conveying the water, &c., from the bath-rooms inside to the tree by means of a shallowed surface drain. The pendalls are in good repair, well ventilated and kept remarkably clean.

Conservancy.

3rd Queen's Own Light Cavalry.—Trench latrines used, placed 300 yards from the lines. There are bathing places inside the men's huts, the water from which is conveyed by surface drains to the roots of trees planted in front of each hut for the purpose. No latrine-pits are allowed for children. The Sowars pay for two sweepers and Government allows one.

16th Regiment, N.I.—The latrines are of two kinds, one permanent for the women and children, while the men use trenches which are to the south of the lines—from the former the filth is removed in a cart to outside cantonment limits and the system has worked fairly well. No pits for children are allowed in front of the huts. The conservancy establishment consists of 9 sweepers paid for by Government, and of 8 sweepers paid for by the men.

Water-supply.

3rd Regiment Q. O. Light Cavalry.—A well, situated between the lines and the hospital, supplies the drinking water for the men. There has been no analysis made of the water, but the men like the water and there is an abundance of it. The water is drawn up in buckets by some; the Lota and string suffices for others; these are the only sources of contamination.

16th Regiment, N.I.—The water-supply from wells is abundant. The water from Dilvara is allowed in so small a quantity that none of the men use it. The Mahadeo well situated in a grove of trees north of the Railway station, seems to be the favourite drinking water here. The hospital well is also much used by the men. The water in both is slightly brackish, but whether any analysis has been made of any of the waters in the wells here is not known. The well (Mahadeo) has leaves of trees and the excreta of birds constantly dropping into it and these with the strings and Lotas of the men are the only sources of contamination.

INDORE.

The native troops at Indore were detachments of Her Majesty's 23rd and 25th Regiments, Native Light Infantry.

Sickness and Mortality.

The following table shows the sickness and mortality among them during the year 1877 :—

Corps.	Average strength.	Average number daily sick.	Number daily sick per 1,000 of strength.	Number of deaths.	Died per 1,000 of strength.	Causes of deaths in Hospital.	Causes of Admissions.														
						Cholera.	Cholera.	Small-pox.	Fever Intermittent.	Fever Remittent and Continued.	Dysentery.	Diarrhœa.	Hepatitis.	Respiratory diseases.	Scurvy.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer.	Wounds and Accidents.	All other Causes.
Right Wing, 23rd Regiment N.L.I.	161·1	3·86	23·96	1	6·95	1	1	3	84	3	4	8	1	2	1	10	7	1	12	20	18
							Admitted per 1,000 of Strength.														
							62·07	18·63	521·41	18·63	24·82	49·65	62·07	12·41	62·07	62·07	43·45	62·07	74·48	124·14	111·7
Left Wing, 25th Regiment N.L.I.	104·6	2·12	20·26	:	:	:	:	:	36	2	2	4	2	9	:	5	1	6	2	11	13
							Admitted per 1,000 of Strength.														
							:	:	344·16	191·20	191·20	38·24	191·20	86·04	:	47·80	95·60	57·36	191·20	10·51	12·42

General Health.

Surgeon D. N. Parakh, in Medical charge of 23rd and 25th Regiments, remarks:—The general health of both the Wings has been fairly good. There were, however, a larger number of admissions into hospital than during the previous year. The principal diseases were in their order of frequency of occurrence:—1. Malarious fevers, the largest number of cases occurring in the months of November and December, 2. Chronic rheumetism, 3. Lung affections, chiefly bronchitis, of which the largest number of cases occurred in August; a severe case of Pneumonia occurred in December, 4. Dysentery which occurred chiefly in December.

The Hospital consists of a centre ward with accommodation for only 8 patients and four corner rooms, two of which are used for office and dispensary, and the others for bath room and a separate ward for bad cases of fever or lung disease. The accommodation for patients during the rains and after the rainy season is deficient because then the number of admissions increases. There are no ventilators in the Hospital and so in the cold weather the patients have to choose between cold draughts if the doors are open, and close air, if they are shut up. Otherwise ventilation is efficient. There are no quarters for the Hospital sweepers. There are no detached huts or building for the isolation of the sick suffering from one or other of the zymotic diseases. When such cases occur, tents are pitched at a suitable distance from the lines and Hospital, for their reception. They are as a rule unserviceable tents, and they are either destroyed, or disinfected and returned to store after they have served their purpose.

Invaliding.

The causes of Invaliding are shewn in the following table:—

Corps.	For Change of Climate.	For Discharge.	Total.	Ratio of Invaliding per 1,000 of Strength.			Causes of Invaliding as stated.		
				For Change of Climate.	For Discharge.	Total.	Chronic Bronchitis.	Chronic Rheumatism.	Debility.
R. W. 23rd Regiment N.L.I. ...	1	...	1	...	...	...	1	1	1
L. W. 25th Regiment N.L.I. ...	...	...	...	...	...	...	...	...	...

Regimental Lines.

The lines are situated about 2 miles from the native city of Indore. They are built on low ground. They consist of ten blocks of huts, five of which are so constructed that each block contains 24 huts; and in each of the other five blocks 26 huts. Width of central street 20 feet 9 inches. Width of cross street 30 feet 3 inches. The mean height of plinths is about 6 inches. The roof is single tiled and the crevices in it serve as ventilators to allow of the egress of the air which enters by the door. The ventilation is deficient if the door is closed, as it usually is, in the cold weather and during the rains.

Conservancy.

There are two well built permanent latrines to the north east of, and about 200 yards from the middle of the Lines. The solid excreta are removed three times a day, and each time immediately carted away to a distance of about 100 yards out of camp limits, and buried in trenches. The ground in which the trenches are dug is afterwards cultivated. There are bathing places inside the huts of the married sepoys and the dirty water which was previously allowed to run out into the open street is now carefully directed into the beds of plants which may happen to grow near the huts, or into holes dug into the ground and filled with good loose earth as a preparatory measure to planting new trees in them. Latrine pits for children are allowed in the lines. They are kept constantly covered and are frequently cleaned.

Water-supply.

The water-supply is chiefly derived from a well near and to the south of the lines, also from a well in the compound of a house of the Rajah of Rutlam about 500 yards from the lines. The Hospital supply is derived from a well in the Hospital compound. None of these wells have been cleaned for some time. The water, however, is of good quality. Near the principal well there is a small nullah and this may possibly become a source of contamination during the rains.

MEHIDPUR.

Toops Quartered.

The Native Troops quartered at Mehidpur were Her Majesty's 24th Regiment Native Infantry, (Head Quarters).

133382

Sickness and Mortality.

The following table shows the sickness and mortality among them during the year 1877 :—

Corps.	Average strength.	Average number daily sick.	Number daily sick per 1,000 of strength.	Number of Deaths.	Died per 1,000 of strength.	Causes of Deaths in Hospital.					Causes of Admissions.														
						Cholera.	Diarrhœa.	Hepatitis.	Respiratory Diseases.	Heart Diseases.	Cholera.	Fever Intermittent.	Fever Remittent and Continued.	Dysentery.	Diarrhœa.	Hepatitis.	Spleen Disease.	Respiratory Diseases.	Dropsy.	Scurvy.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Wounds and Accidents.	All other Causes.	Total.
Head Quarter 24th Regiment N.I.	404·6	13·7	33·8	8	19·77	1	1	1	4	1	1	373	1	17	17	1	2	63	1	2	13	10	19	37	67	613
											Admitted per 1,000 of Strength.														
											2·5	921·9	2·5	42·0	42·0	2·5	4·9	128·5	2·5	4·9	32·1	24·7	47·0	91·5	165·6	1518·6

General Health.

Surgeon Howell, in Medical charge of 24th Regiment states :—The Regiment for the last two months of the year (during its stay at Delhi and on the march to Augur and Mehidpur) was very unhealthy, but ever since the Right Wing and Head Quarters arrived at Mehidpur, they have been for a notoriously unhealthy station like this pretty well. The present health of the Regiment may be considered fair. Average daily sick, highest in October and November, lowest in April. 14 deaths, 8 in and 6 out of Hospital. 13 of this number occurred at Delhi and on the march to this, and were due chiefly to diseases of the respiratory system arising from exposure to cold and fatigue of marching; only one death has occurred since the arrival of the Wing at Mehidpur and that was from cholera.

The Hospital is built on a good open site. Infectious diseases treated separately. Cholera treated in tents.

Invaliding.

The causes of Invaliding are shewn in the following table :—

Corps.	For Change of Climate.	For Discharge.	Total.	Ratio of Invaliding per 1,000 of strength.			Causes of Invaliding as stated.						
				For Change of Climate.	For Discharge.	Total.	Scrofula.	Ague.	Anæmia.	Dropsy.	Facial Paralysis.	Chronic Rheumatism.	Old age and debility.
Head Quarter, 24th Regiment N.I.	3	19	22	7·4	46·9	54·3	1	1	3	1	1	1	11

Regimental Lines.

The Lines were built by the 26th Punjaub, N. I., in 1868 when they occupied the station during the withdrawal of Bombay Troops for the Abyssinian Campaign. They contain 15 houses for Native Officers and noncommissioned staff. 38 huts for Havildars and 411 for sepoys and followers. The lines are 150 yards distant from the river and are laid out from north to south in 8 rows, each of which is divided into two blocks by a transverse street. Height of plinth,—None—built with scarcely any foundation.

Conservancy.

The trench system is in use during the dry season and covered latrines during the rains. No injury to health or nuisance has been occasioned by either trenches, or manner of disposal of filth from latrines. There are bathing places in married sepoys' huts; bachelors bathe in front of huts, or on the banks of the river; surface-drainage—no outfall—water is absorbed. There are no latrine pits for children in front of huts.

Water-supply.

The water-supply, very indifferent in quality and not abundant, is derived from 3 wells in camp and from the river Sipra. There are several sources of contamination of the river water as it skirts the town: it is the main drain. The river being for many months of the year almost still, all organic impurities cannot be sufficiently oxydised and consequently taint the water considerably.

Lieutenant W. H. Lyster, the Staff Officer, states that the civil population residing within cantonment limits amounts to 233 persons.

Birth-rate. There was one birth registered during the year, equal to a ratio of 1·2 per 1,000 of population.

Death-rate. There was one death during the year, equal to a ratio of 1·2 per 1,000.

Income in 1877. Rs. 3,508-2-0.

Expenditure in 1877. Rs. 3,136-6-3.

New works. None.

General Remarks. The station Sudder Bazar and private compounds are in a clean state. The planting of trees is general.

Latrines for the servants in Officers' compounds are much required.

BELGAUM DISTRICT.

BELGAUM.

Troops Quartered. The native troops quartered at Belgaum were Her Majesty's 2nd Granadier (The Prince of Wales' Own) Regiment, N. I., and 14th Regiment, N. I.

Sickness and Mortality. The following table shows the sickness and mortality among them, quartered at Belgaum, during the year 1877 :—

Corps.	Average Strength.	Average Number Daily Sick.	Number Daily Sick per 1,000 of Strength.	Number of Deaths.	Died per 1,000 of Strength.	Causes of Deaths.				
						Cholera.	Fevers Remittent and Continued.	Respiratory Diseases.	All other Causes.	Died out of Hospital.
H. M.'s 2nd Grenadier (P. of Wales' own) Regiment N. I.	6·23	19·21	30·83	8	12·84	5	1	1	1	1
H. M.'s 14th Regiment N. I.	590·7	20·8	34·7	4	6·7	..	1	1	2	7

Corps.	Causes of Admissions.																	
	Cholera.	Small-pox.	Fever Intermittent.	Fevers Remittent and Continued.	Apoplexy.	Dysentery.	Diarrhœa	Hepatitis.	Spleen Disease.	Respiratory Diseases.	Phthisis Pulmonalis.	Dropsy.	Scurvy.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer.	Wounds and Accidents.	All other Causes.	Total.
H. M.'s 2nd Grenadier (P. of Wales' own) Regiment N. I.	6	..	76	26	..	26	13	4	5	18	..	..	7	7	22	10	31	32	66	351
Admitted per 1,000 of Strength.	9·63	..	121·99	41·78	..	44·94	20·86	6·42	8·02	28·89	..	..	11·23	11·23	35·31	16·05	49·76	51·36	105·93	563·40
H. M.'s 14th Regiment N. I.	..	8	125	18	1	24	27	5	..	28	1	1	..	12	22	14	10	47	85	428
Admitted per 1,000 of Strength.	..	5·0	211·6	30·4	1·7	40·6	45·7	8·4	..	47·4	1·7	1·7	..	20·3	37·2	23·7	16·9	79·5	143·9	..

Remarks on General Health. Surgeon C. T. Peters, M.B., in Medical charge 2nd Granadier (Prince of Wales Own) says that the health of the corps has not been so good as last year owing to the famine and unhealthy weather, combined with bad and scanty provisions. The admissions in 1877 amounted to 351 against 372 of 1876, but the average number daily sick has been 19·21 instead of 15·43; there have been as many as 32 or 33 men in hospital sometimes, and the average number of days in Hospital per man was 19·75 against 13 days in 1876.

Surgeon Major C. F. Ogilvie, M.D., in Medical charge 14th Regiment N. I., remarks that the general health of the corps has been good.

Invaliding. The causes of Invaliding were as follows :—

Corps.	For Change.	For Discharge.	Total.	Ratio of Invaliding per 1000 of Strength.			Causes of Invaliding.													
				For Change.	For Discharge.	Total.	Fever.	Rheumatism.	Chronic Bronchitis.	Gastritis.	Dysentery.	Ulcer.	Liver.	Jaundice.	Debility.	Glaucoma.	Discharged on gratuity	Anæmia.	Asthma.	Hepatitis.	Arteritis.
2nd Grenadier, Prince of Wales' Own	18	20	38	28·9	32·1	60·9	6	1	1	1	2	3	1	1	2	..	..	..	..	..	..
14th Regiment N. I.	14	17	31	23·7	28·7	32·4	..	1	..	..	..	..	..	..	9	1	1	1	2	1	1

Regimental Lines.

The Regimental Lines were described in the Sanitary Commissioner's Annual Report for 1876.

Conservancy.

2nd Grenadier (P. W. O.) Regiment, N. I.—There are bathing places inside sepoys' huts and the bathing water is either allowed to soak into the ground or finds its way into the open drains outside. There are latrine pits in front of the huts for children, which are cleaned morning and evening by the sweepers. There are 8 sweepers and 1 tank cart and driver allowed by Government and kept up by the Regiment.

14th Regiment N. I.—There are bathing places inside the men's huts leading to surface drains, but the greater part soaks into the gardens in front of the pendalls. Latrine pits for children are not allowed in front of married sepoys' huts; 6 men and 2 women are employed in looking after the latrines and are paid by Government. One filth cart with driver and pair of bullocks is also paid by the Government to sweep the lines daily.

Water Supply.

2nd Grenadier P. W. O. Regiment N. I.—From wells supply unlimited. Water drawn by leather buckets or iron buckets. Supposed to be good for drinking purposes.

14th Regiment N. I.—The water is derived from five wells. All the wells have covers which prevent leaves from adjacent trees, &c., falling into the water.

DHARWAR.

The Native Troops at Dharwar were Her Majesty's 12th Regiment Native Infantry.

Sickness and Mortality.

The following table shows the sickness and mortality among them during the year 1877:—

Corps.	Average Strength.	Average Number Daily Sick.	Number Daily Sick per 1,000 of Strength.	Number of Deaths.	Died per 1,000 of Strength.	Causes of Deaths in Hospital.			Causes of Admission.																
						Cholera.	Apoplexy.	Hepatitis.	Cholera.	Small-pox.	Fever Intermittent.	Fever Remittent and Continued.	Apoplexy.	Dysentery.	Diarrhœa.	Hepatitis.	Spleen Disease.	Respiratory Diseases.	Scurvy.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer.	Wounds and Accidents.	All other Causes.
H. M's. 12th Regiment N. I.	600·3	14	23·4	4	6·6	1	2	1	1	4	159	1	2	26	7	5	1	23	1	16	81	18	22	43	72
									Admitted per 1,000 of Strength.																
									1·6	6·6	265	1·6	3·3	43·3	11·6	8·3	1·6	38·3	1·6	26·6	135	30	36·6	71·6	120

General Health.

Surgeon W. Boyd, in Medical charge of H. M.'s 12th Regiment N. I., says.—The health of the Corps during the past year has been fair.

A dead house has been built consisting of one room, 12 feet by 12 feet, furnished with *post mortem* table, head rests, &c. It is lighted by one window and has 21 small iron gratings let in near the foundation and roof. A well is also being sunk about 60 yards to the south of the Hospital.

Invaliding.

The causes of Invaliding are shown in the following table:—

Corps.	For Change of Climate.	For Discharge.	Total.	Ratio of Invaliding per 1,000 of Strength.			Causes of Invaliding as stated.		
				For change of Climate.	For Discharge.	Total.	Chronic Bronchitis.	Debility	Old and worn out.
H. M's. 12th Regiment N. I.	3·3	16·6	19·9	...	...	...	2	1	7

Regimental Lines. A full description of the accommodation for Native Troops has been given in the Sanitary Commissioner's report for 1876.

The Station Staff Officer, Dharwar, gives the following information :—

Civil population. The Civil population residing within Cantonment limits amounted to 130.

Birth rate. One birth was registered during the year, equal to ratio of 7·69 per 1,000 of population.

Death rate. Six deaths were registered during the year, equal to a ratio of 46·15 per 1,000 of population.

Income. None.

Expenditure. None.

New works. None.

General Remarks. The station is very clean, as is also the Regimental Bazar and private compounds.

The Executive Engineer has planted trees on either side of all the roads, and the 12th Regiment N. I. have founded a nursery for trees from which from time to time trees are taken and planted in the Cantonment near the Regimental Lines. The soil in most places is very hard and rocky, so that there is considerable difficulty in digging holes for tree-planting.

KOLHA'PUR.

The Native Troops at Kolhápur consist of Her Majesty's 3rd Regiment Native Light Infantry.

Sickness and Mortality. The following table shows the sickness and mortality among them during the year 1877 :—

Corps.	Average Strength.	Average Number Daily sick.	Number daily Sick per 1,000 of Strength.	Number of Deaths.	Died per 1,000 of Strength.	Causes of Deaths in Hospital.	Causes of Admissions.											
						Respiratory Diseases.	Fever Intermittent.	Dysentery.	Diarrhœa.	Respiratory Diseases.	Phthisis Pulmonalis.	Scurvy.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer.	Wounds and Accidents.	All other Causes.
H. M's. 3rd Regiment N. L. I.	473	13·23	27·90	1	2·11	1	171	24	15	42	4	4	14	29	26	4	71	110
							Admitted per 1,000 of Strength.											
							361·52	50·74	31·71	88·79	8·45	8·45	29·59	61·31	54·96	8·45	150·10	232·55

General Health. Surgeon J. Macgregor, in Medical charge of Her Majesty's 3rd Regiment N. I. remarks :—The health of the Regiment has been very good during the past year.

Invaliding. The causes of Invaliding were as follows :—

Corps.	For change of climate.	For discharge.	Total.	Ratio of Invaliding per 1,000 of Strength.			Causes of Invaliding as stated.					
				For change of climate.	For discharge.	Total.	Debility.	Bronchitis.	Varicose Veins.	Pneumonia.	Valvular Disease.	Leprosy.
H. M's. 3rd Regiment N. L. I.	23	33	56	48·6	69·8	118·4	9	2	2	1	1	1

Regimental Lines. The Regimental Lines were described in the Sanitary Commissioner's Annual Report for 1876.

Captain Coulson, the Staff Officer, Kholápur, gives the following information :—

Slaughter house. None. Animals are taken to a spot 1,200 yards leeward of the Bazár and 1,500 yards from the Lines and there killed. Refuse is removed and thrown into the manure yard. Hides and horns are removed

by the owners. Offal blood, &c., are also thrown into the manure yard. The requirements of this place being so small and the slaughtering place so distant no improvment is thought necessary.

Civil population. The Civil population residing within Cantonment limits amount to 646 persons.

Birth-rate. Thirty-nine births, equal to a rate of 60·37 per 1,000 of population were registered during the year.

Death-rate. Twenty-eight deaths equal to a ratio of 43·34 per 1,000 were reported during the year.

Income in 1877. Rs. 2,767-12-0.

Expenditure in 1877. Rs. 2,816-9-6.

New works: None.

General remarks. The station and private compounds are clean. The Station Bazar is not so, it being impossible to keep it clean with the present establishment, viz., one ordinary cart and two sweepers. A filth cart is urgently required as also four more sweepers. The planting of trees is general.

BOMBAY DISTRICT.

BOMBAY.

Troops Quartered. The Native Troops quartered at Bombay were Her Majesty's Detachment 4th Regiment N. I., 20th and 21st Regiments N. I.

Sickness and Mortality. The following table shows the sickness and mortality among them during the year 1877 :—

Corps.	Average strength.	Average number Daily sick.	No. daily sick per 1,000 of strength.	Number of deaths.	Died per 1,000 of strength.	Causes of Deaths. Cholera.	Hepatitis.	Fever Remittent and Continued.	Respiratory.	Heart diseases.	All other causes.
H. M.'s Detachment 4th Regiment N. I.	134	5·7	509·3	2	15	1	1	..	..	..	..
20th Regiment.	581	23·5	40·3	3	0·52	1	..	..	..	..	2
21st Regiment.	563	11·6	20·5	6	10·5	1	1	2	1	1	..

Corps.	Causes of Admissions. Cholera.	Small-pox.	Fever Intermittent.	Fever Remittent and Continued.	Dysentery.	Diarrhœa.	Hepatitis.	Spleen Disease.	Respiratory diseases.	Phthisis Pulmonalis.	Scurvy.	Rheumatism.	Venereal diseases.	Eye diseases.	Abscess and Ulcer.	Wounds and Accidents.	All other Causes.	Total.
H. M.'s Detachment 4th Regiment N. I.	3	2	29	2	1	5	1	..	8	..	..	5	11	1	..	17	44	128
Admitted per 1,000 of Strength.	2·5	15	21·6	16	0·8	3·7	0·8	..	5·9	..	..	3·7	8·2	0·8	..	12·7	32·1	95·8
20th Regiment.	4	6	185	11	9	25	1	1	18	2	10	14	31	16	31	65	133	562
Admitted per 1,000 of Strength.	6·7	10·2	318·4	18·9	15·5	42·9	1·8	1·8	30·9	3·4	18·8	24·1	53·3	27·5	53·3	111·8	228·9	967·3
21st Regiment.	2	..	112	15	5	3	3	..	9	1	8	19	23	8	13	31	33	235
Admitted per 1,000 of Strength.	3·5	..	198·9	26·6	8·9	5·3	5·3	..	15·9	1·8	14·2	33·7	40·8	14·2	23·0	55·0	58·6	505·7

General Health. Surgeon H. P. Roberts, M.D., in Medical charge Detachment 4th Regiment N. I., had medical charge of the detachment only from the 1st December, and during that time the health of the men was very good.

Surgeon H. DeTatham, M. D., M. R. C. P. in Medical charge 20th Regiment N. I., remarks that the health of the Regiment has been good. Twenty-seven have been invalided. Two recruits enlisted. No deaths occurred.

Surgeon Major W. Davey, in Medical charge 21st Regiment, says that the health of the Regiment has been very good during the year. There were 6 deaths in hospital and 5 deaths out of hospital.

Invaliding. The causes of Invaliding were as follows: —

Corps.	For charge.	For discharge.	Total.	Ratio of of Invaliding per 1,000 of strength. For change.	For discharge.	Total.	Causes of Invaliding.
Detachment 4th Regiment N. I.	...	13	13	...	97·0	97·0	Constitutional syphilis.
20th Regiment N. I.	32	44	76	55·2	75·9	131·1	No special remarks.
21st Regiment N. I.	...	15	15	...	26·6	26·6	Do.

Detachment 4th Regiment N. I.

Regimental Lines. There are noisome stable sheds in the immediate vicinity *20th Regiment N. I.*

Ventilation. Tiles porous, doors and small apertures. The number of occupants of huts frequently varies.

21st Regiment N. I.

The huts occupied by the Privates are very small, the dimensions being 14 feet long by 4·12 feet broad, giving a superficial area of 63 feet, with a height of 5 feet 9 inches to the eaves or cubical contents of about 500 feet and there is no difference in the huts occupied by married men with their families from those in which single men live.

Detachment 4th Rifles.

Conservancy. There are no latrines of substantial construction, but mat partitions are provided for use in the dry season, and the filth is removed by hand labour.

20th Regiment N. I.

One latrine for men ... ... } 28 compartments in each,
One latrine for women ... ... }

situated towards the S. E. corner, at a distance of about 14 paces.
There are no latrine pits for children; they urinate and defœcate passim.

21st Regiment N. I.

Except for the Hospital there are no latrines or Urinals, in the Lines; men, women and children, having to resort to the public latrine at Sonapur, distant about half a mile. No latrine pits for children or others are permitted in the lines, but there can be no doubt that children do occasionally make use of the bathing places within the huts for natural purposes.

Detachment 4th Regiment N. I.

Water-supply. The water-supply is from the Vehar Lake.

20th Regiment N. I.

The water is obtained from four tanks situated in the Lines. The water is from the Vehar lake. Amount per head unlimited.

21st Regiment N. I.

The drinking water supplied is from the Vehar Lake, brought in iron pipes and received into closed iron tanks from which the water is drawn, as required, by means of taps or cocks.

TANNA.

Troops Quartered. The only corps at this station during the year was the Right Wing of Her Magisty's 7th Regiment N. I.

Sickness and Mortality. Surgeon J. O'Neal, in charge 7th Regiment N. I. gives the following table, showing the sickness and mortality among the corps during the year :—

Corps.	Average strength.	Average number daily sick.	Number daily sick per 1,000 of strength.	Number of deaths.	Died per 1,000 of strength.	Causes of Deaths, Cholera.	Fever remittent and continued.	Hepatitis.	Heart diseases.	All other causes.	Causes of admissions. Cholera.	Fever Intermittent.	Fever Remittent and continued.	Dysentery.	Diarrhœa.	Hepatitis.	Spleen Disease.	Respiratory Diseases.	Sorryy.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer	Wounds and Accidents.	All other causes.	Total.
R. W. 7th Regiment N. I.	3,522	75·8	260·2	5	15	1	1	1	1	1	1	89	4	13	5	3	2	9	2	11	7	6	8	13	45	218
											Admitted per 1,000 of Strength.															
											..	25	1	3	1	..	..	3	..	3	2	2	2	4	13	59

General Health.

The health of the corps on the whole has been fair. There were altogether 218 admissions during the year, 89 of which were from ague. In November and December the number of cases treated for intermittent fever was 21 and 18 respectively. There was one cholera case admitted in August; the patient died 12 hours after admission.

Hospital.

The hospital is surrounded by the Civil and Police Hospitals, the Police Lines and the Bazar and some outlying houses of Natives. It is too closely surrounded and closed in by buildings and dwellings to ensure thorough and proper sanitation. The building is a poor one but for the detachment it generally suffices (occasionally there is little overcrowding) to contain all the sick. It consists of one oblong ward 57′ × 18½ × 15′, contains 15,603 cubic feet of space, and has an area of 1,040 superficial feet; the verandah measures 155½′ × 8′ × 83¼′ and contains a cubic space of 10,885, and a superficial area of 1,244′; about 16 or 17 patients can be accommodated in the ward, and about 20 in the Verandah, allowing an area of 60 superficial feet for each patient, with ample cubic space if required on an emergency or an outbreak of epidemic disease.

Invaliding.

The causes of Invaliding were as follows:—

Corps.	For change.	For Discharge.	Total.	Causes of Invaliding,							
				Syphilitic affection.	Hemiplegia.	Lung disease.	Heart disease.	Disease of the stomach.	Hypertrophy of spleen.	Old age and Debility.	Local Injuries.
R. W. 7th Regiment, N. I.	...	20	20	1	1	1	3	2	1	9	2

Regimental Lines.

The lines which may be divided linto the old and new ranges have been built to accommodate 729 persons. They are bounded on the north by the jail and the parade ground, on the south by a row of private houses, on the east by the creek, and on the west by the European Civil Lines. The new range of lines is separated from the old one by a road, 56 feet in breadth, and is arranged in 5 rows. Each line is separated from the others by a lane 32 feet in width. Height of plinth from 1 foot 4″ to 3′—8″—material of which roof is composed of new lines—teak, rafters and flat tiles. Ventilation is effected in the old lines through the doors and eaves of the huts. The huts in the newly erected sections have, in addition to the former method, ridge ventilation; and the rooms situated to the extreme east and west are furnished each with a window.

		New Lines	Old Lines.
New Lines ...	Height to Ridge		
	„ of internal wall	8′	6′
	„ of external wall	14′	12′
	„ of doorway	5½′	5½′
	Width	2½′	2½′
	Superficial area	116 s. ft.	119 s. ft.
	Cubic space	1,392 c. ft.	952 c. ft.

Conservancy.

There are two pucka built latrines, one for the men and the other for the women, situated near the creek to the south-east of the lines. The former are furnished with 28 partitions to hold an equal number of oblong iron pans. One central well built drain carries off the liquid collections of the latrines into the creek. The female latrine has been built with 12 seats only. The dry earth system has not yet been introduced. The latrine ordure is removed twice a day during the cold months and thrice at least during the hot weather, and emptied into the creek to the north of the jail.

There are bathing places inside the sepoys' huts, the bath water is allowed to flow through short iron spouts into a narrow **V** shaped drain (7 inches in width at the base), which allows the water to pass into a larger **V** shaped channel, which beginning at the western end of the lines, runs through the space which separates one line from another and terminates in the eastern gutter, which again ends in the larger drains which run along the eastern and western sides of the lines to the creek. They are built of stone and cement, and are flushed daily. Latrine pits for children are not allowed in front of the married sepoys' huts. 5 sweepers and one conservancy cart are allowed by Government, and maintained by the Regiment.

Water Supply.

Water is obtained from wells situated in and near the lines. Although drinking water is furnished by six wells yet the supply appears to be insufficient during the hot weather. Good potable water from Pokran can without any difficulty be now secured. Each man is allowed to draw as much as he chooses.

The water from the wells was analysed in 1874. The amount of the most important substances detected is as follows:—

Chlorine		·014
Total Solids		·480
Ammonia	Free	·00015
	Albumenoid	·00010

No vegetable or animal organism could be detected under the microscope.

Analysis of Pokran Water.

	Grains.
Total solids dried at about 280° F.	16·24 per gallon.
Loss on ignition, blackening slight	1·96 „
Chlorine	·99 „
Sulphuric acid	·77 „
Lime	3·85 „
Magnesia	1·71 „
Silica...	2·52 „
Hardness before boiling	70·0 „
Do. after boiling	40·2 „
Ammonia	
In distllate from carbonate of soda	·0029 „
In distillate from permanganate of potash	·0176 „
Of nitrates and nitrites	·0525 „

The water is drawn from the wells by buckets and small metal pots, no evident source of contamination.

SURAT.

Troops Quartered.

The native troops at Surat were Her Majesty's 17th Regiment, N. I.

Sickness and Mortality.

The following table shows the sickness and mortality among it during the year 1877:—

Corps.	Average Strength.	Average number daily sick.	Number Daily Sick per 1,000 of Strength.	Number of Deaths.	Died per 1,000 of Strength.	Causes of Deaths. Cholera.	Fever, Intermittent.	Fever, Remittent and Continued.	Dysentery.	Died out of Hospital.
17th Regiment, N. I.	636	29·8	46·2	6	0·8	2	2	1	1	4

Causes of Admissions.	Cholera.	Fever, Intermittent.	Fever, remittent and continued.	Dysentery.	Diarrhœa.	Hepatitis.	Spleen Disease.	Respiratory Diseases.	Phthisis Pulmonalis.	Scurvy.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer.	Wounds and Accidents.	All other causes.	Total.
	2	1,078	16	27	47	1	2	52	2	5	43	6	11	66	26	117	1,501
Admitted per 1,000 of Population.	3·1	1,697·6	25·2	42·5	74·0	1·5	3·1	81·8	3·1	7·8	67·7	9·4	17·3	103·9	40·9	184·2	2,360·0

General Health.

Surgeon Major G. F. H. Brown, in medical charge, 17th Regiment N. I., says that the general health of the regiment has not been good; the number of admissions have been much in excess of last year, viz. in 1876-1194 and in 1877-1501. The principal diseases have been ague and malarious fevers, dysentery, diarrhœa and chest disease. Ague gives the largest number of admissions—viz., 676; febricula 409; dysentery and diarrhœa were not of so obstinate a character as last year, chest disease was more prevalent, from bronchitis there were 51 admissions. Two cases of cholera, ending fatally, were admitted. There was an epidemic of small-pox at the beginning of the year, which fortunately did not materially affect the regiment. 4 cases only having been admitted among the women and children; isolation as much as possible from the affected districts was maintained. Cholera did not occur in the epidemic form. The mortality has been less, 6 deaths occurred in hospital.

Invaliding.

The causes of invaliding were as follows:—

Corps.	For change.	For discharge.	Total.	Ratio of Invaliding per 1,000 of Strength. For Change.	For discharge.	Total.	Causes of Invaliding. Chronic Rheumatism.	Syphilitic Affections.	Diseases of Lungs.	Stomach and Bowels.	Spleen.	Ulcer.	Old age and debility.	Varicose Veins.
17th Regiment, N. I.	25	31	56	39·3	48·8	88·1	4	2	1	3	1	1	13	3

Regimental Lines.

The lines are built parallel with the left bank of the Tápti river, about 100 yards distant, on slightly undulating ground.

Number of pendalls, 20.
Aspect N. N. E.
Width of central streets, 20½ yards.

Width of cross streets, 4 yards.
Height of plinth varies from 2¼ to 1 foot.
Roofs are all tiled.

Passage for air is made by holes pierced at regular intervals under the eaves, and communicating with interior of huts. The inner walls of 8 pendalls are not built up to the roof, but left open for purposes of ventilation.

Height to ridge 15 feet.
Height of inside wall 6 feet 8 inches.
Height of outside wall 4 feet 5 inches.

Superficial area of married men's rooms 138 feet, of bachelors 90 feet, of verandahs—cubic space for married men 966 cubic feet, for bachelors 630 cubic feet. Height of door-ways about 4 feet.

Conservancy. There are 3 latrines situated to the south-east of the lines, about 250 yards distant. The night-soil is removed in a filth-cart every day and deposited about ¾ mile from cantonment, and no nuisance has been felt by its disposal. Bathing places are provided in the huts and the water carried of by surface drains to the centre street of each line where there is a main drain. There are no latrine pits in front of any huts. The conservancy establishment kept up consists of 8 sweepers, one filth-cart and one driver. These are maintained by Government. 8 additional sweepers are also kept up and paid regimentally for sweeping and keeping the lines clean.

Water-supply. The water-supply at the station is abundant obtained from wells, but the quality is inferior, all the wells in camp are more or less brackish. At the village of Utva, near the hospital there is very fair water to be obtained; this contains a minimum of saline matter, viz. 9 grains per litre. The other wells, from 5·92 grains to 0·96 grains per litre. The causes of impurity are chlorine, lime, alkaline chlorides, and magnesia; traces of ammonia are also present in some of the wells. The mode of drawing the water is that usual amongst Natives, viz. the rope and mussuck.

Civil Population. The civil population residing within cantonment limits amounts to 191 persons.

Birth-rate. There were 3 births registered during the year, equal to a ratio of 15·87 per 1,000 of population.

Death-rate. There were 3 deaths during the year, equal to a ratio of 2·34 per 1,000.

	Rs.	a.	p.
Income in 1877	132	5	6
Expenditure in 1877	836	13	0
New Works...	None		

General Remarks. The station is kept perfectly clean, as also are the Sudder Bazar and private compounds. There are no hedges in the cantonments; only wooden fences round compounds. Trees are very generally planted on the roads and among the regimental lines.

SIND DIVISION OF THE ARMY.

KURRACHEE.

The native troops at Kurrachee were Her Majesty's 29th or 2nd Belooch Regiment, Native Infantry.

Sickness and Mortality. The following table shows the sickness and mortality among them during the months, commencing 1st January and ending 20th October 1877:—

Corps.	Average Strength.	Average Number Daily Sick.	Number daily Sick per 1,000 of Strength.	Number of Deaths.	Died per 1,000 of Strength.	Causes of Deaths in Hospital.				Causes of admissions.													
						Fever, Intermittent.	Diarrhœa.	Respiratory Diseases.	All other causes.	Small-pox.	Fever, Intermittent.	Dysentery.	Diarrhœa.	Respiratory Diseases.	Scurvy.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer.	Wounds and Accidents.	All other causes.	Total.
										1	404	11	18	19	6	37	24	20	29	46	68	683
29th or 2nd Belooch Regiment, N. I	633·7	25·7	39·3	5	7·9	1	1	2	1	Admitted per 1,000 of Strength.													
										1·6	637·5	17·3	..	29·9	9·4	58·3	37·8	31·5	45·7	72·5	107·3	1,077·3	

General Health.

Surgeon Major E. Morton, in medical charge, says: The general health of the regiment throughout the period under review was good, the total admissions amounting to 381.

Invaliding.

The hospital is a commodious stone-building, well situated, and contains two large roomy wards, and four separate rooms. Accommodation for Hospital Assistants is much required. The causes of invaliding were as follows:—

Corps.	Ratio of Invaliding per 1,000 of Strength.			Causes of Invaliding as stated.	
	For change of climate.	For discharge.	Total.	Valvular Disease.	Loss of left leg.
H. M.'s 29th or 2nd Belooch Regiment, N. I.	7	..	7	11·2	....	11·2	1	1

Regimental Lines.

The regimental lines were formerly the Depôt Barracks, originally designed for European troops, and are situated on a slightly irregular undulating incline. They consist of 9 blocks of buildings in 3 rows with a south-westerly aspect. Each row is separated from the other by a central street, 182 feet wide, running the entire length, and intersected by transverse streets, 30 feet in breadth. The plinth varies, according to the irregularity of the ground, from one to six feet. The ventilation consists of continuous ridge and free lateral openings.

Conservancy.

The latrines six in number, 5 for males and 1 for females, are situated at a distance of 225 feet from and to the north-east of the nearest block of pendalls. The system of conservancy is the standard one of stone-receptacles, into which fit dammered pans for the excreta. These pans are of faulty construction inasmuch as they do not accurately fit into the receptacles and have no dividing partition to separate the solid from the fluid excreta. The filth is carted about 1½ mile where it is buried, and as may be inferred from the dry sandy nature of the soil this mode of disposal neither causes nuisance nor injury to health. There are no bathing places inside the pendalls, bath-rooms being attached to each. In the married quarters a portion of the verandah is partitioned off as a bath-room. The drainage is surface; Latrine pits for children are not allowed in front of married sepoys' huts.

Water-supply.

Water is supplied from wells, which owing to the nature of the soil through which it percolates is more or less impregnated with saline and organic impurities. No analysis has been recently made, but the water is contaminated from the same sources demonstrated by former analysis. The water is drawn in the usual manner, carried to the lines by puckall bheesties and distributed. It is more or less impure when drawn, but the mode of drawing and distribution does not contribute to its further contamination.

HYDERABAD.

Troops Quartered.

The native troops at Hyderabad were Her Majesty's 27th Regiment, Native Infantry.

Sickness and Mortality.

The following table shows the sickness and mortality among the troops quartered at Hyderabad during the year 1877:—

Corps.	Average Strength.	Average Number Daily Sick.	Number Daily Sick per 1,000 of Strength.	Number of Deaths.	Died per 1,000 of Strength.	Causes of Deaths.					Causes of Admissions.															
						Small-pox.	Hepatitis.	Phthisis Pulmonalis.	All other causes.	Died out of Hospital.	Small-pox.	Fever, Intermittent.	Dysentery.	Diarrhœa.	Hepatitis.	Spleen Disease.	Respiratory Diseases.	Phthisis Pulmonalis.	Rheumatism.	Venereal Diseases.	Eye Diseases.	Abscess and Ulcer.	Wounds and Accidents.	All other Causes.	Total.
7th Regiment, N. I.	636	27·0	42·14	4	6·2	1	1	1	1	1	1	263	21	13	2	3	26	1	20	53	25	8	97	105	638
											Admitted per 1,000 of Strength.														
											1·57	413·52	33·01	20·44	3·14	4·71	40·88	1·57	31·44	33·11	39·30	12·57	152·51	165·09	1,003.1

General Health.

Surgeon S. B. Halliday, in medical charge, 27th Regiment, N.I., says that the health of the corps was good during the year, and there was very little rain or inundation from the Indus; there was very little malarious fever compared with last year, when 594 cases were admitted. The number of admissions is 638 being 262 less than last year. The decrease being due to the decrease in ague.

Invaliding.

The causes of invaliding were as follows :—

Corps	Ratio of Invaliding per 1,000 of Strength.			Causes of Invaliding.				
	For change.	For discharge.	Total.	Debility.	Rheumatism.	Bronchitis.	Other Causes.	Total.
27th Regiment, N. I.	12	41	53	18·9	64·5	83·4	20	13	6	2	41

Regimental Lines.

The lines have a south-west front and are disposed in the form of a right-angled parallelogram. The longer sides 257 yards facing respectively north east and south-west, and the shorter 151 yards, north-west and south-east and consist of 48 detached flatroofed (roof composed of mud) mud buildings with 11 paralell streets which run the entire length from north-east to south-east each 9 yards wide except on the 5th from the south-east which is 23 yards wide and 3 parallel streets which run at right angles to the former, the entire length from north-west to south-east. The first and second of these counting from the south-west are 20 yards wide and the 3rd 11 yards. The first, second and third rows from the front contain 36 pendalls, 12 in each, and the 4th or rear row consists of 12 native officer's huts, all these are arranged in parallel rows. All the buildings are built on the surface and are not raised on plinths; there is a footpath, 6 inches high and four feet wide all round each pendall, but not round the native officers' quarters. The lines are in a good state of repair, each pendall is 76 feet long and 20 feet wide and 10 feet high and contains 1,530 superficial feet and 1,53,000 cubic feet which as each pendall contains about 28 unmarried men gives to each man 54 superficial and 510 cubic feet. Each pendall has on each of its 2 long sides only, a verandah extending the entire length of 5 feet wide and 6 high, internal measurements. The married men occupy several of these pendalls, for whom a pendall is divided into 12 compartments by wattle and dab partitions about 6 feet high. One of which extends down the centre from end to end and is intersected at right angles by 5 others, which extend from side to side and form 6 rooms on each side, one of which is allowed to a family. The 12 native officers' huts are 27½ feet long, internal measurements and the same breadth and height as the pendalls; there is no verandah, but instead an uncovered space, 5 feet wide, enclosed by a wall extending on the centre from end to end and carried up to the roof and one portion is allowed to each native officer which gives to each 24¼ superficial feet and 2,411·12 cubic feet. Each pendall is ventilated by 3 fixed cowls on the roof facing south-west, and by 8 doors on each side and 2 at each end; each native officer's block is ventilated by one cowl similar to those on the pendalls and is in common between the 2 native officer's quarters into which each block is divided. There are also 2 doors to each native officer's quarters, one in the front and one in the rear.

Conservancy.

There are 4 pucka latrines, 2 for males, each containing 28 seats and 2 for females, each containing 12 seats. 1 male and 1 female latrines are situated about 54 yards from each rear corner of the lines. They are on the "standard plan" and are very defective, as the pans and pan compartments are too short and the urine frequently falls on the floor in front, the defects and the alterations required have been reported to the proper authority, but there was no money available; 2 maunds of lime are supplied monthly for sprinkling in the latrines. The filth is removed in a tank-cart to the manure-yards which is at a distance where it is buried. There are two bathing places inside unmarried sepoys' huts and the water is received in a large coonda outside each hut, from which it is taken out and sprinkled over the surface of the ground; this practice is open to objection as the so-called bathing water from a married sepoy's hut may and most likely does contain much more than bathing water. It therefore is desirable that this water should be removed out of the lines, but the means allowed are not sufficient for this, and additional expenditure is required and should be sanctioned by Government. Latrine pits for children are not allowed in front of married sepoys' huts; conservancy establishment allowed by Government consists of 8 sweepers and two carts (1 tank cart for filth and one wooden cart for dry sweepings) with two bullocks and one driver for each cart. No conservancy establishment is maintained by the regiment.

Water-supply.

The water is obtained from 3 wells close to the foot of the plateau on which the cantonment is situated. These obtain their supply from the Indus and rise and fall with that river. Analysis of Belooch well

water is as follows:—Colour clear; taste slightly earthy; smell none; Reaction very slightly acid; organic matter none; lime slight precipitate; after boiling clear; chlorine, qualitative, turbidity; quantitative, 10 grains salt per gallon; sulphuric acid slight precipitate. Soap test 3½ grains per gallon; carbonate of lime solids per gallon 39 grains, no blackening; sediment none. The amount of water supplied is 4 gallons per head. The water is drawn by a leather-bucket and a rope and is conveyed by light pakal bhistees and 8 bhistees to the lines where it is distributed. The surface drainage (consisting of rainfall) of the portion of the cantonment occupied by the officers' bungalows flows into the tank which acts as a reservoir to supply the Belooch wells. It has been recommended to divert the drainage referred to above, to a distance from the tank.

JACOBABAD.

Troops Quartered.

The native troops at Jacobabad were Her Majesty's 1st Regiment Sind Horse.

H. M. 2nd Regt. S. H.
Do. 3rd do. do.

No. 2 Mountain Battery and 30th Regiment N. I.

Sickness and Mortality.

The following table shows the sickness and mortality among them at Jacobabad during the year.

Corps.	Average Strength.	Average number daily sick.	Number daily sick per 1,000 of strength.	Number of deaths.	Died per 1,000 of strength.	Causes of Deaths.								Causes of Admissions.															
						Fever, Intermittent.	Fever, remittent and continued.	Respiratory Diseases.	Diarrhœa.	Wounds and accidents.	Dysentery.	Phthisis Pulmonalis.	All other causes.	Fever, Intermittent.	Fever, remittent and continued.	Dysentery.	Diarrhœa.	Hepatitis.	Spleen Disease.	Respiratory diseases.	Phthisis pulmonalis.	Dropsy.	Scurvy.	Rheumatism.	Venereal diseases.	Eye diseases.	Abscess and Ulcer.	Wounds and accidents.	All other causes.	Small-pox.	Total.
1st Regiment Sind Horse.	229·2	12·1	52·8	2	8·7		1	..	..	..	..	..	..	188	1	12	2	2	5	11	..	..	5	18	13	11	24	60	54	..	406
														Admitted per 1,000 of Strength																
														820·2	4·4	52·3	8·7	8·7	21·8	48·0	..	..	21·8	78·5	56·7	48·0	104·7	261·7	235·6	..	1,772·9
2nd Regiment Sind Horse.	263	6·3	36·1	3	7·3	1	..	2	..	..	..	..	..	93	..	13	3	..	1	11	..	..	7	7	11	1	33	26	35	..	241
														Admitted per 1,000 of Strength.																
														353·6	..	49·4	11·4	..	38·0	41·8	..	..	26·6	26·6	41·8	38·0	125·4	98·8	133·0	..	916·4
3rd Regiment Sind Horse.	306	11·9	38·8	7	22·8	..	..	1	2	2	..	..	2	204	..	19	38	2	6	7	..	..	..	14	1	8	22	113	89	..	523
														Admitted per 1,000 of Strength.																
														666·6	..	62·0	120·9	6·5	19·6	22·8	..	..	..	45·7	3·2	26·1	71·8	369·2	290·3	..	1,709·1
Number 2 Mountain Battery.	169	12·7	748·5	2	11·8	..	1	1	..	..	..	..	..	224	1	45	44	1	3	15	..	..	..	24	5	6	32	53	37	..	490
														Admitted per 1,000 of Strength.																
														1,325·4	5·9	266·2	260·3	5·9	17·7	88·7	..	..	..	142·0	29·5	35·5	189·3	313·6	218·9	..	2,800·0
30th Regiment N. I.	516	27·0	52·3	10	..	1	..	2	2	..	1	1	3	214	..	20	26	1	8	44	2	..	5	38	10	8	48	98	113	3	637
														Admitted per 1,000 of Strength.																
														414·7	..	38·7	50·3	1·09	15·5	85·2	4·0	..	9·7	73·6	19·3	15·5	91·0	151·7	217·0	5·8	1,264·4

1st Regiment Sind Horse.

General Health.

Surgeon S. O. B. Banks, in Medical charge 1st Regiment, Sind Horse, says that the health of the corps was unsatisfactory. 406 admissions during the year out of an average present strength of 229·2. Daily average during the year 12·1. The admissions were chiefly caused by malarious fevers, wounds and injuries.

2nd Regiment Sind Horse.

Surgeon M. L. Bartholomeuz, in Medical charge 2nd Regiment Sind Horse, says that the health of the Regiment is fair. Owing to the prevalence of malaria at Jacobabad, the men are more or less subject to fevers of the intermittent type throughout the greater part of the year, continued exposure to this poison is the fruitful source of the next most prevalent complaint viz., ulcers. The most unhealthy period of the year for natives is during the cold weather, when fever and affections of the lungs become prevalent. The inadequacy of warm clothing during the winter is one of the preventable causes of disease.

3rd Regiment Sind Horse.

Surgeon G. E. E. Burroughs, in Medical charge 3rd Sind Horse, remarks that the health of the 3rd Sind Horse is fairly good. The old men have a very anœmic look : many who are admitted with various diseases are found to have an enlarged spleen, which they seem to think is a very trivial matter.

No. 2 Mountain Battery.

Surgeon M. L. Bartholomeuz, who was also in Medical charge No. 2 Mountain Battery, says that the left wing of the Battery remained at Jacobabad until the 22nd March, when it left for Beloochistan (Khelat, Queta, &c.,) on escort duty. The right wing remained at Jacobabad until the 26th October, on which date it left for Mittri. The health of the men is indifferent, and the inadequacy of warm clothing has been a fruitful source of disease during the extreme cold season in Beloochistan. There has been an unusually large number of diarrhœal and dysenteric cases treated in hospital during the year. Two deaths occurred in Hospital.

30th Regiment N. I.

Surgeon G. E. E. Burroughs, who was also in Medical charge 30th Regiment N. I., remarks that the general health of the Regiment compares favourably with the corresponding period of last year. The number of admissions during the period was 637, the average number of daily sick was 27. The prevailing diseases were malarious fevers, abscess and ulcers, rheumatic and respiratory affections. The deaths in hospital were 10.

Invaliding.

The causes of Invaliding were as follows :—

Corps.	For change.	For discharge.	Total.	Ratio of invaliding per 1,000 of Strength. For change.	For discharge.	Total.	Causes of Invaliding. Rheumatism.	Syphilis.	Old age and debility.	Chronic affections.	Diseases of Nervous System.	Disease of Eye Nervous System.	Diseases of Spleen Nervous system.	Injuries.	Dysentery.	Secondary Syphilis.	Rheumatism.	Anterior Curvature.
1st Regiment S. H. ..	17	10	27	74·2	43·7	117·9	Invalided from old age and malaria.											
2nd do. do. ..	8	10	18	30·4	38·0	68·4	3	1	6	..	..	..	..	..	..	..	..	..
3rd do. do. ..	4	20	24	13·7	65·4	79·1	..	..	12	2	1	2	1	1	1	..	..	..
No. 2 Mountain Battery.	4	38	42	23·7	224·8	248·5	Old age, debility and chronic rheumatism.											
30th Regiment N. I. ..	13	19	32	25·2	36·3	62·0	7	..	7	..	..	..	2	..	..	1	1	1

1st Regiment Sind Horse.

Regimental Lines.

The lines are new and built on a standard pattern and are good in every respect. Two men with their accoutrements occupy one-quarter. They are composed of 4 double blocks and 2 single, facing east and west. Distance between each block 218 feet 7 inches ; built on 2 feet plinths roof flat and composed of latties, babul beams, kurril rafters, Toormats plastered with mud and bhoosa. Ventilation semicircular holes in the walls 10 feet high and 10 feet from the ground between the

arched openings centre; walls 10 feet high, verandah 9 feet 6 inches, doorways 7 feet exclusive of archway; each man has 1,362 cubic space, 126 superficial including the verandah. The family lines are private property, accommodation is ample.

2nd Regiment Sind Horse.

There are four double and two single pendalls, each 450 feet long and 16 feet 3 inches wide and 13 feet high, and provided with verandahs 6 feet wide and 10 feet high. Each room has an arched doorway which could be closed when needed, and measures 5 feet 6½ inches high. The pendalls face east and west, and each affords accommodation for 100 men, at the rate of 952 cubic feet and 74 feet 8 inches superficial area for each man. There are 18 Native Officers' quarters and 1 guard-room facing north. The central and cross streets are 16 feet wide. The roof of the pendalls is flat and consists of rafters, reed tatties, and mud. Ventilation by means of semi-circular holes in the outer-walls 10 feet apart and 10 above ground; also by means of holes in the roof, 2 in each room. There is only half a wall dividing the rooms; but this wall is carried up to the roof at every sixth room.

3rd Regiment Sind Horse.

There are four double and single pendalls 453 feet long and 16 × 8 wide and 13 feet high. The verandahs are 6 feet wide and 10 feet high. Each compartment has an arched doorway with door 5 feet 6½ inches in height. The pendalls face east and west. Each pendall is capable of holding 100 men. The cubic space for each man varies in the different dwellings from 876 cubic feet to 952 cubic feet, and superficial area from 72 feet to 74 feet 8 inches. The pendalls are ventilated at top by outlets 20 inches square; but as two rows are built back to back under one roof, there is no thorough ventilation. There are 16 Native officers' quarters and one guard-room. Married quarters are not open to inspection.

No. 2 Mountain Battery.

For the accommodation of the men of the battery there are two pendalls parallel to each other and 200 feet apart. Each of these is divided into two parts by a central partition wall running through its width, thus making two large rooms, the dimensions of each being as follows: length 450 feet, width 8′6″, height 14, feet. These rooms hold 50 men, giving 1,072 cubic feet air space to each man. There is no plinth. The roof is flat and made of beams, dried grass, and mud. There is cross ventilation under the roof, kept up by means of openings in the side walls.

30th Regiment N. I.

For the single men there are at the east end of camp nine blocks of pendalls, built in parallel lines and running north-east and south-west. The blocks in the right and those on the left are only half the width of the remainder. The seven in the centre have a central partition wall running down their whole length, forming a large room on either side of it. Each of the central blocks will accommodate 100 men, whilst those on the outside only half that number. The distance between each block is 50 yards. There are no cross streets or plinths. The roof is made of wood, grass and mud. Height of ridge of internal walls 14 feet, and that of external wall 15 feet. Superficial area of a single man's room, 73 square feet. Cubic space in a single man's room 1,022 cubic feet. Height of door-way, including arch, 6 feet 2 inches. There is cross ventilation under the roof of the blocks of pendalls by means of square openings in the side walls.

1st Regiment Sind Horse.

Conservancy.

The conservancy is bad; the latrines are situated too closely to the men's quarters, 24 feet 9 inches to the nearest quarter, and are badly situated, being placed in the middle of the Troop lines. They are constructed of sundried brick on earthen floors, the whole of the liquid excreta being disposed of by soakage and evaporation; there are 36 surface latrines; the filth is removed morning and evening in carts and is placed in pits N. N. W. of camp, about two miles distant. No bathing places in the men's quarters; they bathe in the open space in front of their quarters; the water being carried away by surface drains, also by soakage, and evaporation.

2nd Regiment Sind Horse.

There are 6 latrines between each two blocks or pendalls situated 30 feet from the latter. The dry-earth system of conservancy is adopted as far as practicable. The filth is taken out of Cantonments once every day and buried. There are no bathing places inside sepoys' huts. In the married lines each house has its own latrine, none outside. There are 5 Government sweepers, 17 regimental sweepers, and 1 Government cart and 6 regimental carts.

3rd Regiment Sind Horse.

There are 3 latrines, one placed between each squadron and facing the north by north-west; they are about 30 yards from the lines; they are flushed daily and chloride of lime is sprinkled about the place. The filth is removed twice a day and carried about 2½ miles out of camp. There are bathing places inside the single men's quarters. The married

quarters are not allowed to be inspected, but they are not in that state which hygeine demands. There are no latrines for women. There are 12 sweepers, two to each troop, also one cart for removal of filth.

No. 2 Mountain Battery.

There are two separate latrines, one for men and the other for women, recently built. These are situated at a convenient distance from the Lines. The dry-earth system of conservancy is carried out. The filth is removed twice a day to a distance of 1½ miles to the east of the Lines. It causes no nuisance, no injury to health. There are no bathing places inside sepoys' huts. There are no married men's huts. Three sweepers are provided by Government.

30th Regiment N. I.

There is only one latrine which is used solely by the prisoners. The rest of the men go into the jungle. There is a small latrine attached to each married man's quarter, which is cleaned twice a day. There are no bathing places, and the water used for this purpose is absorbed gradually. There are no drains.

1st Regiment Sind Horse.

Water-supply.

The water-supply is derived from wells, tanks, and in the hot weather, from canals. From November till June the Dhobies have to go some three or four miles to wash the clothes, as they are very properly not allowed to pollute the tanks in camp. An analysis of the potable waters here was made in 1875 by Surgeon Bartholomeuz, from which it will be seen that all the samples examined were impure, containing an excessive quantity of organic matter, chloride of sodium with other impurities. The water is drawn from wells by leathern buckets, and carried from them in puckhals for distribution in the lines. Possible sources of contamination—the wells are uncovered, leaves and other impurities fall into them—use of dirty vessels by bhisties; dirty habits of the natives—percolation of surface impurities. The soil is alluvial.

2nd Regiment Sind Horse.

The source of water-supply is from wells, which are plentiful at Jacobabad. The quantity per head is more than sufficient, and the quality is fair. The chief impurities are chloride of sodium and vegetable matter derived from the alluvial soil. The water is drawn in leather buckets and conveyed by bhistees in mussucks and pakhals.

3rd Regiment Sind Horse.

The supply is drawn from wells and distributed by bhistees. As these wells are open, the water contains vegetable matter derived from trees overhanging them; if they could be closed and water pumped into troughs previous to distribution, it would be a great advantage.

No. 2 Mountain Battery.

The water-supply is derived from 3 wells in the vicinity of the Lines fair in quality, except during the hot season, when it becomes slightly brackish.

30th Regiment N. I.

The Water-supply is good and plentiful.

Captain H. B. McNeill, Brigade Major, gives the following information:—

Civil population. The civil population residing within Cantonment limits amounted to 2,545.

Birth-rate. Sixty-eight births were registered during the year, equal to a ratio of 26·71 per 1,000 of population.

Death-rate. Fifty-three deaths were registered during the year, equal to a ratio of 20·86 per 1,000 of population.

Income. Rs. 9,616.

Expenditure. Rs. 6,784.

New works. None.

General Remarks. The station, Sudder Bazar, and private compound are very clean, and since the introduction of a more extended scale of conservancy, will be still cleaner. The rapid growth of under-wood constantly needs cutting as it prevents the perflation of air. The planting of trees is general.

ADEN BRIGADE.

ADEN.

Troops Quartered. The native troops at Aden were Her Majesty's No. 1 Company S. and M., 6th and 25th Regiment N. I. and Aden Troop.

Sickness and Mortality.

The following table shows the sickness and mortality among them at Aden during the year 1877 :—

Corps.	Average strength.	Average number daily sick.	Number daily sick per 1,000 of Strength.	Number of deaths.	Died per 1,000 of strength.	Causes of Deaths. Diarrhœa	Respiratory diseases.	Phthisis Pulmonalis.	Wounds and accidents.	Died out of hospital.
1st Company S. and M.	16·5	0·12	7·3	..	..	..	..	..	..	..
6th and 25th Regiments N.I.	631·3	14·52	22·20	6	9·4	1	3	1	1	3
Aden Troop.	87	4·3	49·0	..	..	..	..	..	..	..

Corps.	Causes of Admissions. Fever, intermittent.	Fever, remittent and continued.	Dysentery.	Diarrhœa.	Hepatitis.	Spleen disease.	Phthisis pulmonalis.	Scurvy.	Rheumatism.	Venereal diseases.	Eye diseases.	Abscess and ulcer.	Wounds and accidents.	All other causes.	Respiratory diseases.	Total.
1st Company S. and M.	1	..	..	..	..	..	..	..	..	..	..	..	2	1	..	4
Amitted per 1,000 of Strength.	60·6	:	:	:	:	:	:	:	:	:	:	:	121·2	60·6	:	242·4
6th and 25th Regiments N.I.	49	..	22	27	1	1	2	25	71	6	4	5	5	91	20	330
Admitted per 1,000 of Strength.	77·6	:	34·8	42·8	1·6	1·6	3·1	39·6	112·5	9·5	6·3	8·0	8·0	144·2	31·7	521·3
Aden Troop.	73	3	8	4	..	1	..	5	9	1	3	6	18	19	9	159
Admitted per 1,000 of strength.	839·1	34·5	92·0	46·0	:	11·5	:	57·4	103·4	11·5	34·5	69·0	206·9	218·4	103·4	1,827·6

General Health.

Surgeon Major Rogers, in Medical charge No. 1 Company S. and M., says that the Company arrived here only three weeks before the end of the year and only 3 of them have been admitted into Hospital. The Hospital and its surroundings, &c., have already been described.

6th and 25th Regiments N. I.

The health of the men of Her Majesty's 6th Regiment, Bombay, N. I., has in the whole been good, especially when it is remembered that the Regiment has been 2 years in Aden and the men have had very arduous duties. The total admissions up to date (5th December 1877) have been only 311.

25th Regiment N. I.

The health of the men of the 1st Detachment and Head-quarters had been good. The total admissions from 7th to 31st December have been only 18. The admissions were from fever (7), diarhœa (2), scurvy (1), rheumatism (2), venereal diseases (2), wounds and accidents (2), and all other causes (1).

ADEN TROOP.

The health of the troop during the past year was good. Large number of admissions from fever, dysentery, and scurvy contracted by the malarious climate of Aden. No deaths among the troops or absentees.

Invaliding.

The following were the causes of Invaliding.

Corps.	For change.	For discharge.	Total.	Ratio of Invaliding per 1,000 of Strength. For change.	For discharge.	Total.	Causes of Admissions. Old age.	Debility.	Rheumatism.
1st company S. and M. ...	...	...	...	...	...	...	...	...	...
6th Regiment N. I.	6	58	64	1·5	...	1·5	...	...	...
Aden Troop	...	3	3	...	...	...	1	1	1

6th Regiment N. I.

Conservancy.

No alteration has taken place in the conservancy of the camp as regards the Native Lines during the year under review. It is precisely the same as it was described in the last annual report.

Aden Troop.

The only latrine in the Lines is a small one attached to the new Hospital, and it is regularly cleaned. The men and their followers resort to the neighbouring sandy plain for natural purposes, and the small privies in the Family Lines are regularly cleaned by sweepers, and no latrine pits for children are allowed; no nuisance or injury to health is occasioned by the system. The men are made to bathe outside their huts and in this sandy soil, the water very soon dries up by the action of the sun. Only two sweepers are allowed by the Government, but four or five others are maintained at the expense of the corps.

6th Regiment N. I.

Water-supply.

The water is supplied by Government through the Commissariat Department under the supervision of the Quarter Master Staff. Each sepoy is supplied with two gallons of condensed water for drinking and cooking purposes, and three gallons of brackish water for all other purposes.

Aden Troop.

Fighting men receive two gallons of condensed and three gallons of Shaikh Othman water (Brackish), both qualities are good and the quantity is sufficient.

SECTION IV.

JAILS.

For the year under report the average daily number of prisoners in the Presidency jails was 11,316. This is the mean for the year, and the following table shows the deaths per 1,000, the ratios per 1,000 of admissions into hospital, and the daily sick :—

Years.	Average Annual Strength.	Ratio per 1,000.		Deaths per 1,000.
		Admissions into Hospital.	Daily sick.	
1872	8,203	945	27	29·1
1873	9,061	790	26	29·4
1874	9,483	960	32	20·5
1875	9,244	895	32	28·2
1876	8,798	782	28	20·6
Mean for five years. ...	8,960	874	29	25·6
1877	11,316	946	28	57·7

From this table it is seen, that in 1877 the rate per 1,000 of admissions was more by 164 per 1,000 than it was during 1876, and more by 72 per 1,000 than the mean for the preceding 5 years. The daily sick rate per 1,000 was the same as for 1876, was 4 less than for 1874-75, and 1 less than the preceding 5 years' mean. The death-rate per 1,000, was 57·7 : it exceeds the rate for 1876 by 37·1, and that for the preceding 5 years' mean by 32·1. In the Northern and Southern Deccan District Jails, this high rate of mortality is attributed to the general debility of prisoners on admission, consequent upon the scarcity during the period of famine. The increase in the actual number of prisoners is no doubt indirectly due to the dire want which everywhere prevailed.

The following table shows the distribution of the prisoners, and the admissions, daily sick and death-rates in each jail in the Presidency during 1877 :—

	Jails.	Average Strength.	Admissions into Hospital.	Ratio of Admissions per 1,000 of Strength.	Average Number of Daily sick.	Ratio of Average of daily sick per 1,000 of Strength.	Number of Deaths.	Ratio of Deaths per 1,000 of Strength.
	1	2	3	4	5	6	7	8
Northern Deccan ...	Dhulia	501	401	800·3	8·5	17·0	11	21·96
	Poona	606	324	534·6	8·1	13·4	24	39·60
	Yerrowda, Poona	1,718	2,005	1,167·6	65·0	37·8	49	28·52
	Nira Gang, Poona Distrct*... ...	148	295	1,993·2	3·8	25·7	20	135·14
	Ahmednagar	469	255	543·7	8·9	19·0	38	81·02
	Sholápur	451	332	736·1	10·1	22·4	23	51·00
Southern Deccan ...	Satara	423	284	671·3	9·5	22·5	17	40·18
	Belgaum	406	258	635·4	11·9	29·3	30	73·89
	Gokák Gang, Belgaum Distrct* ...	166	334	2,012·0	8·9	53·6	37	222·89
	Dharwar	805	961	1,193·7	20·2	25·1	139	172·66
	Kaládgi	554	494	891·5	14·7	26·5	67	120·94
Konkan ...	Karwar	264	151	571·9	7·2	27·3	7	26·52
	Ratnágiri	198	90	454·5	2·3	11·6	3	15·15
	Bombay, Common Jail	278	160	575·5	6·3	22·7	7	25·18
	Bombay, House of Correction ...	378	174	460·5	13·4	35·5	8	21·17
	Tanna	751	1,452	1,933·4	34·7	46·2	41	54·59
Guzerat ...	Surat	243	101	415·6	2·4	9·9	7	28·81
	Kaira	143	110	769·2	1·4	9·8	4	27·97
	Dohad...	210	308	1,466·6	14·7	70·0	16	76·19
	Ahmedabad	424	313	738·2	10·9	25·7	12	28·30
	Dhuliákot	379	339	894·5	9·7	25·6	4	10·55
	Rájkot	74	27	364·8	1·1	14·9	1	13·51
Sind ...	Kurrachee	335	445	1,328·7	7·8	23·3	21	62·69
	Hyderabad	415	263	633·7	14·2	34·2	20	48·19
	Shikárpur	487	165	338·8	5·8	11·9	16	32·85
	Nára	412	622	1,509·7	19·5	47·3	32	77·67
Aden ...	Aden	78	48	615·4	2·8	35·9	...	...
	Total ...	11,316	10,711	946·6	323·8	28·16	654	57·79

* *N. B.*—The Nira and Gokak Gangs were formed in the last quarter of the year.

The above table shows, that the Yerrowda Jail is by far the largest and the most important in the Presidency, as its average strength during the year was 1,718. This strength exceeds for the preceding year by 241. The smallest jail in point of numbers was that at Rajkot with an average strength of only 74 prisoners. The total number of admissions into Hospital during the year was 10,711, and it ranged from 27 at Rajkot to 2,005 at Yerrowda. The average admission-rate during the year was 946·6 per 1,000, and it rises from 338·8 to 2,012·0. On an average 28·6 prisoners in all the jails were constantly sick during the year; but the rate differs from 9·8 at Kaira to 70·0 at Dohad. The average daily sick-rate for 1877 was 0·3 less than that of 1876.

In the jails collectively 654 deaths have taken place, and they range from 1 at Rajkot to 139 at Dharwar. Aden was the only jail, (with an average strength of 78,) where no deaths have taken place. Dharwar stands first on the list, with 139 deaths; next come Kaladgi with 67, and Yerrowda with 47. In connexion with the high rate of mortality at Dharwar, it must be remembered that the whole of the district was within the famine area.

The principal causes of admissions into Hospital will be learnt from the following table:—

	Admitted per 1,000 of Average Strength.						
	1872.	1873.	1874.	1875.	1876.	Mean for five years	1877.
Fevers	309·9	292·5	432·5	418·0	321·2	371·0	356·9
Abscess and Ulcers	62·7	50·9	54·7	68·8	65·0	60·4	90·4
Wounds and Accidents ...	57·4	7·1	10·0	2·8	47·4	25·0	49·0
Diarrhœa	56·7	51·8	46·3	33·0	43·4	46·2	93·8
Respiratory Diseases	45·1	50·8	52·7	35·8	38·5	44·6	27·6
Dysentery	45·5	30·2	39·9	33·8	36·3	37·1	61·1
Eye Diseases	14·6	16·1	18·7	12·1	12·0	12·7	18·9
Rheumatism	16·8	11·3	12·0	10·2	11·4	12·3	11·8
Venereal Diseases	8·2	10·0	10·3	7·4	7·4	8·7	20·1
Atrophy and Anæmia	1·6	2·2	1·5	1·5	1·4	1·6	1·4
Total of these 10 causes ...	699·5	522·9	678·6	623·4	584·0	621·7	736·0
Total of all causes ...	945·9	790·3	960·9	895·1	782·8	915·5	946·6

Contrasting the figures for 1877 with the mean of 5 years and with the figures for 1876, it will be seen that the admission-rate, with one or two exceptions, has considerably increased in the year under report. The highest rate of admission in the previous five years for fevers was attained in 1874, being 432·5, the minimum being 309·9 in 1872, and in 1877 it was 356·9 or more by 35·7 than in 1876, and less by 14·1 than the quinquennial mean. The admission-rate for diarrhœa was more than double what it was in 1874, 1875, and 1876, twice as high as the mean of the preceding 5 years and little less than double that for 1872 and 1873. The admission-rates for the remaining diseases have increased more or less.

The principal causes of deaths will be seen in the following table :—

	Died per 1,000 for Average Strength.						
	1872.	1873.	1874.	1875.	1876.	Mean for five years.	1877
Dysentery and Diarrhœa ...	7·2	6·2	4·4	7·1	5·8	6·1	25·27
Fevers	6·2	5·1	3·6	5·2	3·5	4·7	6·98
Respiratory Diseases	5·6	7·4	5·3	6·1	3·5	5·6	4·77
Cholera	0·2	...	...	0·8	0·9	0·4	3·27
Phthisis Pulmonalis	1·5	0·4	0·4	0·3	0·5	0·6	1·06
Atrophy and Anæmia	0·7	0·6	0·1	0·1	...	0·3	0·35
Spleen Disease	0·2	...	0·1	0·1	...	0·1	0·00
Dropsy	0·2	0·1	0·2	...	...	0·1	0·18
Wounds and Accidents ...	0.5	0·2	...	0·4	0·3	0·3	0·27
Apoplexy	0·5	0·1	0·1	0·3	0·1	0·2	0·09
Total from these 10 diseases...	22·8	20·1	14·2	20·4	14·6	18·4	42·24
Total from all causes ...	29·1	29·4	20·5	28·2	20·6	26·0	57·79

In all, dysentery and diarrhœa were very fatal, and their proportion is this year four times greater than the mean of the preceding 5 years. The deaths from these two diseases were 286, nearly one-half of the total deaths. Cholera broke out in 11 jails, and of 73 attacks, 37 proved fatal.

The following table will show the number and ratio of the principal causes of admissions and the number and ratio of deaths from cholera and all other causes :—

JAILS.		Admissions and Ratio per 1,000.																				Deaths and Ratio per 1,000.					
		Cholera.		Fever Intermittent.		Fevers Remittent and Continued.		Dysentery and Diarrhœa.		Hepatitis.		Spleen Disease.		Respiratory Diseases.		Phthisis Pulmonalis.		Dropsy.		Atrophy and Anæmia.		Scurvy.		All other causes.		A. Cholera.		B. All other causes.		C. All Causes.	
1		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Northern Deccan ..	Dhulia	12	23·9	190	379·3	2	3·9	53	105·8	..	..	..	..	2	3·9	..	..	..	..	..	..	..	..	142	283·6	6	11·98	5	9·98	11	21·96
	Poona	7	11·5	183	301·9	5	8·3	38	62·7	1	1·6	..	..	10	16·6	..	..	..	..	1	1·6	10	16·6	69	113·8	2	3·30	22	36·30	24	39·60
	Yerrowda	14	8·0	957	557·0	2	1·1	210	122·1	3	1·6	..	..	39	22·6	2	1·1	..	..	..	..	6	3·3	772	449·2	9	5·24	40	23·28	49	28·52
	Nira Gang	..	..	161	1,087·9	70	472·9	9	60·8	..	..	..	..	..	..	2	13·5	..	..	..	..	..	..	53	358·1	..	..	20	135·14	20	135·14
	Ahmednagar	..	..	89	189·8	..	..	30	63·9	..	..	..	..	7	14·9	..	..	..	..	..	..	14	29·8	115	245·3	..	..	38	81·02	38	81·02
	Sholápur	..	..	73	161·9	3	6·7	76	168·5	..	..	..	..	1	2·2	..	..	..	..	4	8·8	..	..	175	388·0	..	..	23	51·00	23	* 51·00
Southern Deccan ...	Satara	3	7·0	73	172·6	..	..	72	170·2	..	..	..	..	2	4·7	..	..	..	..	..	..	..	..	134	316·8	1	2·36	16	37·82	17	40·18
	Belgaum	..	..	56	137·9	..	..	106	261·1	..	..	..	..	8	19·7	..	..	..	..	..	..	..	..	88	216·7	..	..	30	73·89	30	73·89
	Gokak Gang	..	..	98	590·4	3	18·1	124	747·0	..	..	..	..	2	12·0	..	..	..	..	1	6·0	..	..	106	638·5	..	..	37	222·89	37	222·89
	Dharwar	4	4·9	221	274·3	..	..	479	595·1	1	1·2	..	..	9	11·3	..	..	..	..	..	..	..	..	247	306·9	2	2·48	137	170·18	139	172·66
	Kaládgi	4	7·2	68	122·7	1	1·8	94	169·6	..	..	..	..	13	23·5	3	5·4	2	3·6	..	..	..	..	309	557·7	4	7·22	63	113·72	67	120·94
Konkan. ..	Karwar	..	..	54	204·6	1	3·7	25	94·8	..	..	..	..	2	7·5	..	..	..	..	1	3·7	..	..	68	257·6	..	..	7	26·52	7	26·52
	Ratnágiri	..	..	23	116·1	..	..	12	60·6	..	..	..	..	2	10·1	..	..	..	..	..	..	..	..	53	267·7	..	..	3	15·15	3	15·15
	Bombay, Common Jail	5	18·0	41	147·5	4	14·4	27	97·1	5	18·0	1	3·6	7	25·2	..	..	..	..	..	..	..	..	70	251·8	3	10·80	4	14·38	7	25·18
	Bombay, House of Correction ..	..	..	56	148·2	20	52·9	23	60·8	2	5·4	..	..	11	29·2	..	..	..	..	..	..	..	..	62	164 0	..	..	8	21·17	8	21·17
	Tanna	5	6·7	677	901·5	1	1·3	131	174·5	2	2·6	3	4·0	19	25·3	5	6·5	..	..	..	..	10	13·4	599	797·6	4	5·32	37	49·27	41	54·59
Guzerat ..	Surat	5	20·6	34	139·9	2	8·2	19	78·2	..	..	..	..	1	4·1	..	..	..	..	..	..	..	..	40	164·6	4	16·46	3	12·35	7	28·81
	Kaira	..	..	19	132 9	..	..	11	76·9	..	..	..	..	3	20·9	..	..	..	..	1	7·0	..	..	76	531·9	..	..	4	27·97	4	27·97
	Dohad	1	4·7	82	390·3	..	..	77	366·6	..	..	..	..	37	176·1	..	..	..	..	..	..	..	..	111	528·9	1	4·76	15	71·43	16	76·19
	Ahmedabad	13	30·6	86	202·8	3	7·1	26	61·3	1	2·4	1	2·4	13	30·6	4	9·6	..	..	..	..	..	..	166	391·4	1	2·36	11	25·94	12	28·30
	Dhuliakot	..	..	103	271·7	1	2·7	19	50·1	..	..	1	2·7	13	34·3	..	..	..	..	..	..	..	..	202	533·0	..	..	4	10·55	4	10·55
	Rajkot	..	..	8	108·1	..	..	3	40·5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	16	216·2	..	..	1	13·51	1	13·51
Sind ..	Kurrachee	..	..	216	644·7	5	15·0	47	140·1	..	..	1	3·0	18	53·7	1	3·0	2	6·0	5	14·9	1	3·0	149	444·9	..	..	21	62·69	21	62·69
	Hyderabad	..	..	108	260·2	5	12·0	48	115·7	..	..	1	2·4	16	38·6	..	..	..	..	1	2·4	..	..	84	202·4	..	..	20	48·19	20	48·19
	Shikárpur	..	..	30	61·6	1	2·0	20	41·1	..	..	..	..	39	80·0	..	..	..	..	3	6·1	1	2·0	71	146·0	..	..	16	32·85	16	32·85
	Nara	..	..	178	432·0	9	21·8	29	70·4	..	..	..	..	38	92·2	..	..	..	..	..	..	14	34·0	354	859·2	..	..	32	77·67	32	77·67
Aden	Aden	..	..	16	205·1	..	..	2	25·7	..	..	1	12·8	..	..	..	..	..	..	..	..	..	..	29	371·8	..	..	..	..	..	..
		73	6·5	3,900	344·7	138	12·2	1,810	159·9	15	1·3	9	0·8	312*	27·6	17	1·5	4	0·4	17	1·5	56	4·9	4,360	385·3	37	3·27	617	54·52	654	57·79

* *N. B.*—The Nira and Gokak Gangs were formed in the last quarter of the year.

The opinions of the different medical officers as to the sufficiency or insufficiency of the new diet-scale are somewhat divided, though the majority speak of it as sufficient. From Karwar, Tanna, Ahmedabad, Dhuliakot, Rájkot, Kurrachee, and Hyderabad, it is reported as insufficient, and the medical officer at Dhuliakot states that in July 12 prisoners were weighed, and the average loss sustained by each was from $2\frac{1}{2}$ to 3 lbs.

The Jail Hospital cook-house at Dohad is reported to be defective, and it is added that it has been so reported for "many years." The Superintendent of Police, Panch Máháls, speaking of the cook-room, and the general insecurity of the Jail buildings says—"The defects of the Jail have been frequently remarked on, and reported to Government during the past 10 or 12 years, but no notice has been taken of them, and nothing done to remedy the defects, except the building of a latrine for males, which will probably be completed by the end of the month."

The following summary of the health of the prisoners in each jail has been compiled from the monthly reports of the medical officers for their respective charges.

Dhulia.

The barracks of the Jail at Dhulia are clean and neat and well ventilated. Overcrowding was gradual. In the month of September the number of prisoners was 801, the minimum being 720. From October it began to fall. The overcrowding has, to a certain extent, been mitigated by making use of the workshops as barracks. The Civil Jail was also made available for criminal prisoners. Of the conservancy of the Jail and the personal hygiene of the prisoners, the medical officer, in his remarks for the month of May, says—"Satisfactory except the night-pans in the cells which ought to be discontinued. Their objectionable nature and the necessity for privies to each ward have often been pointed out." As regards the state of the drainage and sewerage in and around the Jail, the medical officer considers it to be fairly satisfactory. In his remarks for the month of March he says—"Some cess-pools or sinks in the course of gutters leading from wells and carrying off rain-water are sources of annoyances; they are cleansed twice a day, but particles of food and washing of plates, &c., passing into them give rise to bad odours. There is not enough water in the Jail to flush these gutters properly." The food supplied to the prisoners was good and sufficient. The water-supply was also good but was very insufficient. The clothing of the prisoners was sufficient and suitable. There is a want of hard labour. The hospital accommodation was sufficient and suitable. The character of the diseases has been trivial. Small-pox prevailed to a moderate extent in the town and district in the months of February, March and April. In February one convict was attacked and was discharged cured in March. In April another was attacked and died. The medical officer, in his remarks for the month of August, makes the following observations on the prevalence of cholera:—"Cholera has prevailed in the town of Dhulia and surrounding districts. Ten cases occurred in the Jail. Four of these had just been admitted in the prison and probably brought the seeds of the disease with them. No connection could be traced between the attack of the remainder and the disease outside the Jail." In September two cases of cholera occurred, and the medical officer remarks;—"I am happy to say the disease has now entirely disappeared in the town, and almost so in the surrounding districts." No recommendations regarding the Jail were made to the Civil Authorities, and no transfers of prisoners were directed on account of disease. There was an average strength of 501, admissions 401, and deaths 11.

Poona.

The barracks of the Poona Jail are in a state generally of good repair. Ventilation is sufficient. The Jail was over-crowded, but the over-crowding was prevented by converting some of the work-shops into sleeping apartments. In August the construction of more barracks was contemplated. Several prisoners were transferred to relieve over-crowding in the months of September, October and November. The conservancy of the Jail is carried out on the dry-earth system, which works excellently. The general hygiene of the prisoners is good. The drainage is natural and good. No surface-water is to be seen anywhere in the vicinity of the Jail. The sewers in the city are believed to be in bad order. Food was

abundant and of good quality. Water supply is excellent in quality and unlimited in quantity, but in June and July the quantity was indifferent owing to the rains, but from August it was again good. The clothing of the prisonors was sufficient and adapted to the seasons of the year, but in November and December it was somewhat scanty, and some of it was much torn and worn. None of the prisoners suffered from the effects of the labour demanded of them. The hospital is sufficient to accommodate the patients. In the months of October and November, the medical officer remarks "Ague has, as usual, been the chief cause of sickness and admission into hospital. Many of the patients show a scorbutic taint, the result generally of starvation before admission into Jail." In January, February and March small-pox and cholera had affected the surrounding population, but they obtained no entrance into the Jail. In April chicken-pox caused five admissions amongst the prisoners. All those attacked were boys in the juvenile male prison. In May, June and July the Jail was entirely free from either of these diseases, notwithstanding their prevalence in the city. In August cholera, which was prevalent in the city, broke out amongst the prisoners also. Five persons were attacked, but only 2 died. September passed without any cholera case occuring in the Jail. In October however one case occurred, and one female prisoner was admitted on 28th of November suffering from cholera. Several recommendations were made for the relief of the over-crowding. In June the medical officer made a recommendation to the Superintendent for the prevention of the nuisance arising from throwing dirty water and urine to the west of the Jail adjoining the public road. He also recommended the repair of the hospital roof. In the remarks for the month of August the medical officer says—"A recommendation was made to the Inspector-General of Prisons to reduce, if possible, the over-crowded population of the Jail. The recommendation has not yet been given effect to." No transfers or liberations on account of any disease were directed during the year. Average strength 606, admissions 324, and deaths 24.

Yerrowda.

The Jail barracks at Yerrowda are sufficiently ventilated. About the middle of April the state of the Tanna and several other district jails became such that they necessitated transfers, and since then this jail began to be over-crowded. The over-crowding was, however, relieved as much as possible by putting prisoners to sleep in the work-shops. The dry-earth system of conservancy is well carried out. The water supply being insufficient, the cleanliness of the prisoners and their clothing leaves much to be desired. The state of the drainage and sewerage in and around the Jail was good. Food was good both in quality and quantity. The new revised scale of diet was introduced on the 1st of July. The water-supply for drinking purposes is sufficient and good. Arrangements for ablution will continue unsatisfactory so long as there is no proper distribution of water over the Jail. The clothing of prisoners was good in quality and sufficient in quantity. The labour exacted from the prisoners was moderate. For ordinary purposes the hospital accommodation is satisfactory. The hospital accommodates 100 patients only but not more. The prevailing diseases are guinea-worms, ague, dysentery and diarrhœa, which, together with some others, assumed a rather severe character in the months of May, June, July and August. The medical officer says in his remarks for the month of April—"At my request, one of the jail contractors, a Parsee, has been treating some of the cases of guinea-worm admitted during the latter part of the month. It is too soon to speak with certainty of the result of this experiment, but as far as I have yet been able to form an opinion, the worms have been removed more expeditiously than I have been accustomed to; I was induced to try this, as I heard that he had a large practice in cases of guinea-worm in the town, and he takes no remuneration for his troubles." In June he remarks—"One case has been returned as cholera. The only source to which the affection could be traced was exposure to damp and cold. The man had no opportunity of drinking water other than that from the Kurruckwasla tank which supplies all Poona. It was drawn from a stand-pipe within the Jail." On the increase of respiratory and eye-diseases in the month of September, the medical officer says—"On the other hand, there has been an increase under the diseases of the eye and respiratory system. It seems likely

that the great over-crowding has been the cause of the increase in the number of men treated under these two heads." The cause assigned for the increase in number of cases of ague by the medical officer is:—"About the hour of sunrise the mornings have been very cold; whereas the days have been hot, and it is probably to the sudden change of temperature that we should attribute the increase in cases of ague treated." Cholera prevailed more or less in the neighbourhood of the Jail in the month of August. The medical officer says—"We have had 13 cases with 7 deaths in the Jail. The last admission took place on the 19th August. The disease fortunately did not spread through the Jail, though the cases admitted came from different sleeping barracks, and the men had been employed on different works. It was found impossible to ascertain the origin of the disease. None of the men engaged in attending on the cholera cases contracted the disease. One sweeper fell ill, but I satisfied myself that he had been employed in removing excreta from the latrines inside the Jail to the trenches prepared to receive them and had never been engaged in any way in connection with the cholera patients, whether before or after they were taken ill. In the month of May the barracks in Circle No. 1 were furnished with sleeping berths, built of sun-dried bricks which rest on burnt bricks placed on the ground. No other improvements, besides berths in barrack No. 1 mentioned above, were made." No liberations or transfers were directed on account of any disease during the year. Average strength 1,718, admissions 2,005, and deaths 49.

Admednagar.

The Jail barracks of the Admednagar Jail are commodious, lofty and well ventilated. The system of dry-earth conservancy is carried out, and the prisoners have ample facilities for ablution. The drainage within the Jail is good and the sewerage fair. The food-supply, both as regards quality and quantity, was good. The new diet-scale was introduced from the 1st of July. No report, showing the result of the trial, has, however, been received. The water-supply is good and abundant. The clothing of prisoners was sufficient and adapted to the seasons of the year, although, owing to the over-crowding in August, want was felt for a time; it was speedily remedied by the manufactures of clothing. The labour exacted from the prisoners was not excessive. The hospital is an upper-storied ward and can accommodate 4 female and 19 male patients. The diseases were of a trivial nature, but the medical officer in his remarks for November and December says—"The cases treated presented a scorbutic type, and the progress of disease was evidently affected by the famine privation, to which the patients had been subjected before their admission into jail. In July, August, and September cholera prevailed in an epidemic form in the city, but the Jail was free. It disappeared from the city in September." In the remarks for the month of July the medical officer says—"Two tents for the reception of cholera patients have, on recommendation, been erected outside the city, one on the north, and the other on the south side, and the dispensaries opened for the distribution of medicines. The over-crowding was remedied in November by making use of all the available space in store-rooms, sheds, &c., and an extramural gang was sent into huts at Nimbluck. No liberations or transfers were directed on account of disease. Average strength 469, admissions 255, and deaths 38.

Sholápur.

The ventilation and the state of the Jail Barracks at Sholápur are good. There was continual overcrowding throughout the year. The dry-earth system of conservancy is strictly carried out, earth being the only deodorizer used. Night-soil is carried out in the garden in shallow trenches, but owing to the large number of prisoners even dry-earth conservancy, though strictly carried out, scarcely meets the requirements. Speaking generally, the personal hygiene of the prisoners, owing to the absence of water in the vicinity, was not good; some improvement was however noticed in July and the subsequent months. The drains are in a fairly good condition, but not being chunamed, lead to soakage into the soil. The following general remark upon the food-supply was made by the medical officer:—"The diet has been found very suitable, both as regards quantity and quality". The water-supply was good, but insufficient during the months of April, May and June. From July the pouring rains increased the quantity, and its quality was very fair. The clothing of prisoners was rather insufficient in

the months of June to September, when there was excessive over-crowding in the Jail. None of the prisoners suffered from Jail labour. The hospital affords but a limited accommodation and is insufficient for many extra patients above the ordinary number. The medical officer in his remarks for the month of June says,—"The casualty recorded under heat apoplexy or sun-stroke, in my opinion, was due to the over-crowding in the hospital". In September diarrhœa prevailed to a considerable extent among the surrounding population, as also ulcers. A large number of prisoners suffering from ulcers was admitted into hospital during the month. In October and November ague was very prevalent in the town and district of Sholápur, but did not affect the prisoners beyond a slight degree. In July the local lock-ups were converted into subordinate jails as a temporary measure, in order to relieve the excessive over-crowding. In May, June, July, August, and September 100, 143, 41, 100 and 67 prisoners were respectively transferred to these jails to relieve over-crowding; one case of leprosy was transferred to Yerrowda. Average strength 451, admissions 332, and deaths 23.

Satara.

The barracks of the Satara Jail were excessively and habitually over-crowded throughout the year so much so that Government, on the representation of the medical officer in August, sanctioned the occupation by the prisoners of part of a Police barrack close to the Jail; ventilation in them was most defective. The dry-earth system of conservancy is in force, but the medical officer does not approve of the night-soil being deposited in pits within the Jail compound. The Jail buildings are infested with bugs. The prisoners are kept clean by weekly bathing. There is good surface drainage and sewerage. The quality of food was good, and the quantity on the new reduced diet scale, as introduced in July, was on trial. In August it is remarked the diet is good and "sufficient for limited periods." The water-supply was sufficient and good, except in the months of March, April, May and June. As regards the clothing of the prisoners, the medical officer, in his remarks for the month of July, says—"The scale allowed is sufficient. That now in use by the prisoners and available is insufficient and very bad owing to the excessive number of prisoners in jail, rendering it impossible—with convict labour—to keep the supply up to the requirements." In October he says—"Extra clothing is necessary for the aged and feeble in cold and damp weathers. None of the prisoners have suffered from Jail labour. The hospital attached to the Jail is of the most miserable description; very few deaths occurred. In August 5 deaths took place from debility and diarrhæa all of which were however among the aged or feeble prisoners who had been long in jail, or were affected by privation, due to the general scarcity. Cholera prevailed, to a certain extent, in the surrounding district from January to September. The first cholera case in the Jail was admitted on the 5th June, with regard to which the medical officer says—"No reason could be assigned for his being attacked, as he had been working inside the Jail. He was treated separately in a tent with ½ dram doses of calomel repeated 3 times. He made a good recovery." In July 2 more prisoners were attacked. No liberations or transfers were directed on account of disease during the year. Average strength 423, admissions 284, and deaths 17.

Belgaum.

The barracks of the Belgaum Jail contain accommodation for only 117 males and 7 females, although the number actually confined during the year was more than double and treble these figures. The ventilation however is good. The system of dry-earth conservancy is in force, and the personal hygiene of the prisoners was good. There are no drains or sewers. The food supply was good. The medical officer, in his return for July, records the following remark regarding it:—"Quality fair, quantity has been recently reduced, and observations are being made to ascertain if the health of the convicts will suffer by the change". The water-supply is from the well in the Police Lines and though not analysed is yet good and sufficient in quantity for drinking purposes. There was not sufficient clothing for the prisoners. A good many were clothed in rags; whilst others had to put on their own clothing, some of the prisoners had new clothing issued to them in July, and to some extent it was sufficient and well adapted for the season. The work allotted to the prisoners was of a light nature, such as grinding,

breaking stones and building latrines for the Municipality, clearing wells, &c. The hospital accommodation was indifferent and quite insufficient in October. The greatest number of admissions in the months of August, September and October took place from contusions, consequent on the breaking of stones by the convicts. No case of cholera occurred, notwithstanding that from January to June it prevailed among the surrounding population to a slight extent, especially among the travellers and cartmen from the Dharwar and Kolhápur Districts. No liberations or transfers were driected on account of disease. Average strength 406, admissions 258, and deaths 30.

Dharwar.

The barracks of the Dharwar Jail are well ventilated. Since May there was overcrowding in the jail, to relieve which, the former Civil Jail and the jail verandahs, and the work-sheds were made use of at nights for the accommodation of a considerable proportion of the surplus number of prisoners. The conservancy of the jail was satisfactory, but many of the prisoners admitted since February were in a very weak and exhausted state from want of food. The state of the drainage and the sewerage was good. Food was good in quality, and abundant in quantity. The clothing of prisoners was sufficient and well adapted for the seasons. The labour exacted from the prisoners was moderate. There was sufficient hospital accommodation. The cases that came under treatment were all of a mild nature. The medical officer in his remarks for August says: "The cases under treatment have been almost entirely dependent upon general debility, the result of privation, before admission into jail." In September he says:—"The health of the prisoners has been prejudicially affected by the excess in number and consequent overcrowding." In November and December the mojority of the prisoners admitted were weak and broken down. Cholera, which was prevalent in the town of Dharwar and the surrounding districts during the first 3 months of the year, attacked one prisoner in January, and 2 others in February. In April, May, and June, cholera and small-pox were present in the town and the surrounding districts; but only one case of small-pox occurred in the jail in April, and none in May and June. Every time that any cholera attack took place in the jail, care was taken to isolate the patients. The general distress from scarcity, which prevailed largely throughout the district during July and the subsequent months, caused the admissions of many prisoners in a weak and exhausted state, who, notwithstanding the treatment they were placed under, did not very readily regain their strength. Each month the number of admissions began to show a large increase over the number of the previous month and an unusually large number of deaths occurred, chiefly from general debility and uncontrollable diarrhœa and dysentery. The Dharwar Civil Jail was made over to the Superintendent of the Dharwar Jail for the purpose of establishing more thorough quarantine against the prevailing epidemics of cholera and small-pox. The subsidiary jail was also made use of, by sanction, to relieve the jail of a portion of the large excess of prisoners. In August the hospital was removed to a larger and more commodious building which was formerly the Civil Jail. In August several prisoners were transferred to Gokák, and a further relief was given by the formation of an extramural gang in the neighbourhood of Dharwar and its location in huts, formerly used for the accommodation of destitute persons engaged on famine relief works. Another extramural gang was formed in November. Fifty prisoners were also transferred to Gokák with great relief to the overcrowding. The extramural gang was ordered to proceed to Gokák in December. Average strength 805, admissions 961, and deaths 139.

Kaládgi.

The barracks of the Kaládgi Jail are in good condition, and are kept clean. It has sufficient ventilation by means of ridge, of roofs, doors, and windows. During the greater portion of the year the barracks were much crowded, and all the small and large rooms, factory, &c., were utilised for accommodating prisoners at night time. The dry-earth system of conservancy is in force in the day latrines and the night barracks. The excreta are carried to trenches prepared beyond the jail precincts by sweepers, who are constantly on the spots. Prisoners were marched twice a week to the river for ablution. A bathing-room for sick persons has been attached to the hospital. Surface drainage natural. No sewerage. Food-supply was

good in quality, and sufficient in quantity. The water-supply was drawn from a well in the jail garden. Its quality was good, but on account of the dearth the well water was ordered to be used for cooking and drinking purposes only; and for every other purpose river water was used. The clothing of the prisoners was sufficient, and well adapted to the seasons. The labour exacted was not such as to make the prisoners suffer from it. The hospital accommodation was ample, and the diseases were for the most part unfavourably influenced by privation owing to the famine in the district, and the overcrowded state of the jail had an aggravating effect on them. Both cholera and small-pox were prevalent among the surrounding population. Two deaths from cholera in January, and one death from small-pox in June, occurred in the jail. A recommendation was made, in the month of August, to the District Magistrate to keep the debilitated and sickly men and the short term prisoners in the taluka lock-up jails, where they would be fed, &c., for fear the long distance which they would have to travel should produce an injurious effect on them, as also for the purpose of affording some relief to the excessive overcrowding which existed then. A recommendation was again made in September to the Civil authorities to make some arrangements to relieve the overcrowding. It was then arranged that subordinate jails should be opened in different talukas for the short term prisoners, and that a batch of about 200 prisoners should be ordered to proceed to the Gokak canal work. No liberations or transfers were directed during the year on account of the disease. Average strength 554, admissions 494, and deaths 67.

Karwar.

The Karwar Jail is calculated to accommodate 155 prisoners (648 cubic feet to each). The ventilation is perfect, and is secured by patent ventilators placed on the ridge. From July the barracks began to be crowded, but no injurious effect was produced. The dry-earth system of conservancy is in force. Kundas (earthen pots) containing dry-earth are placed at night in the cells and barracks; the night-soil in these and in the latrines is carried out and buried. There are surface drains to carry away the rain water. The diet was excellent in quality. The reduced diet scale was enforced on the 20th of July. In the remarks for October the medical officer says—"I consider the scale of diet is good and ample in quantity for ordinary jail work but for the out-door work, which involves much walking, such as carrying loads from a long distance, I consider the old scale of 1½ pound of grain should be given." The water supply, which is from wells, and pumped into a large filter, is excellent and abundant. The prisoners had sufficient clothing, which was well adapted for the seasons of the year. None of the prisoners suffered from the work given them. The hospital accommodates 12 patients, and its ventilation is perfect, and is secured by patent ventilators placed on the ridges. From July to November the hospital was, for contingent purposes, ordered to be used as a barrack, and the contagious ward, as a hospital. The sickness was of a very mild nature. In the remarks for the month of October, the medical officer says:—"There has been more sickness in the previous month. There were 5 or 6 very serious cases of large ulcers on the lower extremities, chiefly in old men who, previous to their admissions into jail, had been suffering from famine." There was no epidemic in or about the jail during the year. The insufficient accommodation was brought to the notice of Government in August, and plans and estimates for temporary barracks were also forwarded for sanction of Government in September. One of the working sheds was converted into a barrack, thus giving the jail an extra acccommodation for 40 prisoners. No liberations or transfers were directed on account of any disease. Average strength 264, admissions 151, and deaths 7.

Ratnágiri.

The state of the barracks of the Ratnágiri Jail is good with ample ventilation. The barracks slightly leaked during the heaviest rains in June. The conservancy of the jail is well attended to, and the personal hygiene of the prisoners was good. The drainage and sewerage, both in and around the jail, are exceptional, there being proper facilities for the removal of dirty water. The quality of the food issued to the prisoners was fair. The new diet scale introduced on July 1st, seems sufficient. The water-supply was obtained from the several wells in the jail compound,

which provide good, clean water for drinking and other purposes. The water-supply in April, however, was scanty, and in May it was not so good as usual; but in June it was again restored to its normal state. The clothing of the prisoners was good and well adapted for the seasons of the year. Labour varied from light to hard, but the pr isoners did not suffer on its account. The hospital accommodation was good. In the remarks for the month of May the medical officer says:—"Diseases are of a very slight character; the great majority are due to worms, ascaris lumbricaides, for which the prisoners receive physic without being admitted into the hospital. This disease is prevalent throughout the district, and is, I believe, due to the drinking of unfiltered water." Small-pox from January to June, and cholera and diarrhœa from July to September, prevailed in an epidemic form in the native town of Rátnagiri, without, however, affecting any of the prisoners. In October the town was free from all these epidemics. None of the prisoners were liberated or transferred on account of any disease. Average strength 198, admissions 90, and deaths 3.

Bombay, Common Jail.

The barracks of the Common Jail of Bombay are sufficiently ventilated. The conservancy of the jail and the personal hygiene of prisoners were good. The state of the drainage and sewerage in and around the Jail was good. The food was good in quality and sufficient in quantity. The water-supply is from the Vehar Lake, and good. The prisoners had sufficient clothing. None of the prisoners suffered from the jail labour. The hospital accommodation was sufficient. In the remarks for the month of July the Medical Officer says:—"The accumulation beneath the fixed boarding of the floor in hard labour yards may have had something to do with the cases of cholera." Cholera prevailed in May, June, July, and August, amongst the surrounding population. In the jail, however, there was only one case in May, another in June, and 5 more in August. In June the building in which the cholera case occurred, was thoroughly cleaned, and the wooden flooring (moveable) was taken up. In August the flooring in the hard labour yard was taken up, and the ground beneath (stone flooring) cleansed. In January a prisoner suffering from debility was released. He was an old man, and during the two years of his simple imprisonment, was all the while a tenant of the Jail hospital. In March one native prisoner was transferred to Poona City Jail for change of air on account of ill health. Average strength 278, admissions 160, and deaths 7.

Bombay, House of Correction.

The barracks of the House of Correction, Bombay, are good and ventilated. From May to the end of the year there was overcrowding, and this was increasing month after month. The excreta are removed by carts, and cleanliness is strictly observed. There is good surface drainage. The diet is also good, of full weight, and of sufficient quantity. The water-supply from the Vehar Lake is good and ample. Prisoners were given sufficient clothing, which was well adapted for the seasons of the year. Labour is carried on under cover, and prisoners do not suffer from hard labour, as those who are in delicate and bad health are put to light work only. The hospital is good and sufficient, but has no accommodation for infectious diseases. Diarrhœa prevailed to a very large extent in the month of August, and in the opinion of the medical officer was influenced by certain preceding conditions. In the months of June and July cholera prevailed in Bombay City without affecting any of the prisoners. A sepoy belonging to the Jail was attacked in his own house, and died, but he was not near the Jail after being attacked. The alterations in the Hospital, native ward, have been progressing. Two prisoners were transferred to the lunatic asylum. One was a case of dementia, the other of mania. Average strength 378, admissions 174, and deaths 8.

Tanna.

The barracks of the Tanna Jail are new, well ventilated and satisfactory. Except in February they were greatly overcrowded throughout the year. In the remarks for the month of June the medical officer suggested that a screen of some kind be erected in front of the barracks, for condemned prisoners are stored at like wild beasts in a cage. In his opinion the state of things is most objectionable. The system of dry-earth conservancy is in force and works well. The personal cleanliness of prisoners as

a rule is most satisfactory. There is no special arrangement to give new prisoners a plunge bath on their arrival in the Jail, which is desirable and it is hoped that with the new water supply this defect will be easily supplied. The medical officer says in his remarks for October—" Several of the prisoners are cleanly looking and endeavour to perform ablution as often as they can, but the greater number from the nature of their work and from the want of time cannot avail themselves of the opportunities for washing that may be easily afforded to them" The new system of open drains is excellent and has a natural fall towards the creek. No part of the Jail is now saturated with water. Sewerage is entirely absent. The surface of the Jail is kept remarkably free from filth of all kinds. The Jail surroundings are open and fairly free from surface filth and are naturally well drained by the Fort ditch. The food is regularly examined and is good; the quantity according to the old scale was sufficient but the reduced scale of diet introduced in July is decidedly insufficient. In April the water-supply was deficient and its quality consequently was deteriorated, but since the completion in June of the scheme for bringing in a water-supply from the Pokrun spring the Jail has received an ample water supply the quality of which is however doubtful. The clothing of prisoners was sufficient and suitable for the season of the year. No decided opinion as to whether the prisoners suffered from labour has been recorded by the medical officer. There is very good hospital accommodation, and the building itself is raised on the top of the old ramparts about 25 feet above the natural level of the Jail ground. The dead house is most defective in construction and ventilation, and is quite unfit for use and it is very dangerous to hold any *post mortem* examination within its walls. It is built along side of store rooms and has ventilation on two sides only and there is no roof ventilation whatever. In the remarks for October the medical officer says—" The hospital accommodation is ample for the number of patients the building is intended to accommodate. It is not sufficient for the present increased number of sick. The ventilation of the hospital latrine and hospital bath-room is very defective and quite insufficient. It is effected only through four tolerably small openings in the eastern wall of the buildings, also by the two entrances. The offensive smells in them are quite unbearable". In the remarks for October it is said several cases of ague, dysentery, &c., were treated for debility after their specific symptoms were overcome by treatment which was mainly due to want of nourishment from the insufficient diet that is now supplied to the prisoners. Cholera and small-pox prevailed in April, the former of a virulent type, and the latter was rather severe outside the Jail. One prisoner was attacked by small-pox but was discharged cured. In June, July, August and September cholera was prevalent in the town of Tanna. In all 5 cases occurred in the Jail of which 4 proved fatal. Three recommendations were made to the Municipality in August. 1st. The introduction of a water-supply from a distinct point of ingress for the town of Tanna; 2nd, the thorough cleansing of the Town, 3rd, A complete system of surface drains. Six cases of leprosy, 3 in June and 3 in September, were transferred to Yerrowda Leper Hospital. 30 prisoners were transferred to the Central Jail Poona in June to ease overcrowding, and 70 prisoners were transferred in September to Alipore for transmission to Port Blair. In November 3 cases of leprosy were transferred to the Yerrowda Jail. The medical officer in his remarks for the month of December says—" The insufficient diet, combined with the nature of the work too prolonged and severe for the under-fed men has no doubt been the cause of the excessive mortality and also of the prolonged convalescence of the greater number of the patients. Average strength 751, admmission 1,452, and deaths 41.

Surat.

The state of the Jail at Surat is very good. Ventilation is secured by means of ventilators on the roof, and side wall of the cells. To prevent overcrowding 6 tents were pitched in the courtyard of the Jail in August. The dry-earth system of conservancy is in force, and the personal hygiene of prisoners is very good. There are no under drains, the rainfall is carried off by surface drains. There has been no complaint of imperfection in drainage and sewerage. The sewerage matters are carried away to Jail garden. The supply of food was good and sufficient. The new dietary was introduced on the 1st July. Water supply is good and sufficient. In August the clothing of prisoners fell short on account of the increased number of pri-

soners and in September additional clothing was applied for. The labour was not injurious. The hospital accommodation was good. All the diseases except cholera and diarrhœa were of a mild character. In January, February, March, April and June small-pox was prevalent in the city. There occurred, however, only 2 cases of small-pox in the Jail in the month of March, both of which terminated in recovery. In July and August there were a few cases of cholera of which only one was cured. No important recommendations were made to the civil authorities during the year. No liberations or transfers were directed on account of any disease. Average strength 243, amissions 101, and deaths 7.

Kaira.

The state of the Jail barracks at Kaira is good and the ventilation sufficient. From August the Jail barracks began to be overcrowded. The excess number of prisoners had consequently to be provided for in tents. The conservancy of the Jail and the personal hygiene of prisoners were good. There are only surface drains for carrying off the rain water. Food was sufficient in quantity and of good quality. The water-supply is of a fair quality and abundant in quantity. The clothing of prisoners was sufficient and well adapted to the seasons of the year. No injurious effect was produced on the health of the prisoners by their having had to perform somewhat hard labour. The hospital accommodation is sufficient for 8 patients at 1,584 cubic feet per head. The cases treated were all of an ordinary character. In October cholera prevailed in the surrounding districts, but no case occurred among the prisoners. No recommendations were made to the civil authorities during the year. None of the prisoners was transferred or liberated on account of disease. Average strength 143, admissions 110, and deaths 4.

Dohad.

The Jail barracks at Dohad are in good repair. The ventilation is effected by each cell having an open, barred iron front, and a hole in the roof covered with a revolving cowl. It is efficient. The Jail is calculated to accommodate 114 prisoners only. There was overcrowding in the Jail but this did not produce any injurious effect on the health of the prisoners. No special disease was produced by it. The dry-earth system of disinfecting, and deodorizing fœces, &c., is in force. The excreta of the prisoners are removed every morning and evening and burried at a distance, east of the Jail. The cells are regularly luped and whitewashed according to regulation and the compound is swept out daily. The prisoners wash themselves and their clothing at a large well inside the Jail. There is one large drain, which passes northwards under the female wards. It merely carries away the rain during the monsoon. It is partly covered and partly open and is efficient. There is no sewerage either in or around the Jail. Since July 1st the diet was given on a reduced scale. The food supplied to the prisoners was sufficient in quantity and it was of good quality. The water supply is obtained from wells for some months from a well in the Guzerat Bheel Corps Lines, and from a well in the compound of the Superintendent of Jail. The clothing of prisoners was sufficient but the majority of the prisoners were Bheels who in ordinary are accustomed to wear only a lungoti, there was no very great difficulty about it. Weaving, carpentary, gardening, brick making, grinding corn, &c., form the labour generally performed from which however none of the prisoner suffered. The hospital according to the regulation is sufficient for the accommodation of 5 patients only, but 8 can easily be accommodated there. The medical officer in his remarks for February says.—"The respiratory diseases were of a severe nature, as may be imagined from the fact of two, the only deaths among the prisoners, deaths being due to this cause. I attribute these diseases solely to the insufficiency of clothing, the coldness of the weather, and the dampness, owing to the usual rainfall." Small-pox prevailed in an epidemic form from January to May in the surrounding districts, but none of the prisoners were affected by it, probably because every prisoner was vaccinated on coming into the Jail. In November cholera broke out in the Town of Godra and Jail, and in many villages about Dohad, but none of the prisoners were affected by it. The followning recommendation to the Civil authorities was made by medical officer in the month of January. "The Jail visitors recommend that the ventilation of the cook-house should be made efficient or a new cook-house built. This recommendation has been made for so many years and no notice taken

of it that it now seems hopeless to expect anything to be done in the matter; complete separation of the Civil from the criminal prisoners has also been strongly urged as well as the buildings of a proper latrine for the prisoners. The following by the Superintendent of Police, Panch Máhál, is worthy of notice. "The wretched cook-room and the general insecurity of the Jail building are matters which, in my opinion, deserve immediate attention. No notice has been taken of this remark. It is very probable that none will be taken of it or of the other frequent remarks of the visitors to the Jail. The defects of the Jail have been frequently remarked on and represented to Government during the past ten or twelve years but no notice has been taken of them and nothing done to remedy the defects, except the building of a latrine for males which will probably be completed by the end of the month." In June the following recommendation was made. "The Jail arrangements seem satisfactory, but an addition to the workshop accommodation is desirable.—However, this must be a matter for the future. When the present additions and alterations are complete, a cooking shed will be provided and two cells for civil prisoners, and this will increase the accommodation available. With regard to a latrine for female prisoners it seems to me that there is absolute need as the plan of using the rear portion of an empty cell is as good as any other, that is if the building is to be within the female enclosure, and this appears to be absolutely necessary. I see no Sanitary objection to the present arrangement which would not apply with equal force to a separate building within this narrow enclosure." No liberations or transfers were directed during the year on account of any disease. Average strength 210, admissions 308, and deaths 16.

Ahmedabad.

The barracks of the Ahmedabad Jail are in good order. The ventilation is rather deficient and not susceptible of improvement. There was overcrowding in the Jail since July. The conservancy is properly attended to and the personal hygiene of the prisoners carefully looked after. The drainage is in good order. The food supplied to the prisoners during the last year is of a good quality, but owing to the introduction of the reduced diet scale barely sufficient in quantity the more especially so in the case of the hard labour prisoners. There is a good and a plentiful supply of water. The clothing of prisoners was sufficient and suitable for the seasons of the year. None of the prisoners suffered from the labour performed by them. The hospital accommodation is sufficient for the requirements of the Jail. The diseases were of mild nature. In November 12 cases of cholera occurred, one proving fatal. No recommendations regarding the Jail were made during the year. No transfers or liberations were directed on account of any disease. Average strength 424, admissions 313, and deaths 12.

Dhuliakot.

The barracks of the Dhuliákot Jail are in a good state and have sufficient ventilation. The dry-earth system of conservancy is in force. Night-soil is removed to a distance from the Jail and buried in deep pits mixed with earth. The personal hygiene of the prisoners was good. There is an open drain running through the Jail which is constantly kept in a clean state. Besides this there is no other drainage or sewerage around the Jail or in its close proximity. The food supplied to the convicts, though in quality quite unexceptionable, was yet barely sufficient under the new diet scale, and the effect of this has been that the prisoners have lost weight. In July 12 prisoners were weighed and the average loss sustained by each was from 2½ to 3 pounds. The water supply is obtained from a well. It is good and pure and is supplied in sufficient quantity. The clothing allowed to the prisoners though insufficient was yet well adapted for the season of the year. The labour exacted was light but many of the prisoners suffered from blisters on their legs on account of their being taken out to work at some distance from the Jail in the middle of the day. The medical officer advised that the hour should be changed. There is sufficient hospital accommodation, and the building used for this purpose is calculated to contain 25 patients at 1,584 cubic feet to each. None of the diseases were at any time of the year unfavorably influenced by the existing prison conditions but the medical officer remarks that many of the prisoners suffer from the insufficient quantity of diet. No epidemic disease prevailed among the surrounding population. The Peon Lines within the Jail

compound were very much overcrowded in the month of June, and it was then recommended that some arrangements be made without delay. There were no transfers or liberations of prisoners during the year. Average strength 379, admissions 339, and deaths 4.

Rájkot.

The barracks of the Rajkote Jail are in good condition. There was no injurious overcrowding. The conservancy of the Jail is well attended to. The state of the drainage and sewerage, in and around the Jail, is good. The food supply was of good quality though doubts are entertained as regards its sufficiency. The water supply in the months of April to August though scanty was of good quality. The clothing as supplied to the prisoners was sufficient and suitable. None of the prisoners suffered from Jail labour. There is sufficient hospital accommodation. No diseases were unfavourably influenced by any of the Jail conditions. There was no epidemic of any kind. No recommendations for any improvement, &c., was made during the year, and none of the prisoners were transferred or liberated on account of any disease. Average strength 74, admissions 27, and death 1.

Kurrachee.

The barracks of the Kurrachee Jail are pendalls, open all round, except on the north-eastern side, which is usually secured with a mat in order to protect the prisoners from suffering cold. This does not however in any way obstruct the insides being thoroughly ventilated. This matting was removed in April. The dry-earth system of conservancy is in force and answers most satisfactorily. The prisoners bathe regularly and wash their clothes at stated periods. The drainage in the Jail consists of open masonry drains, which convey the waste water from the wells to outside the Jail, where it is sprinkled over the ground by the prisoners. The night-soil, &c., is carried in iron-dammered tubs outside the Jail, and is then buried in trenches. The quality of the food supplied was good. The medical officer in his remarks for August, says—"There has been a considerable increase in the percentage of those treated to strength, due, in my opinion, to the reduced diet scale, which is too low for a similar hard labour. The old diet-scale was well adapted and framed after much careful consideration, and I should recommend its being re-established." The water supply is obtained from a well, about $\frac{3}{4}$ of a mile from the Jail, and is considered the 2nd best well in Kurrachee. The clothing of prisoners was sufficient and was well suited to the seasons of the year. The prisoners did not suffer from the nature, or amount of the work allotted to them. There was ample hospital accommodation during the year. The prevailing causes of illness were boils, ulcers, fevers and dysentery, which may justly be attributed to the insufficiency of the new diet scale. From January to April small-pox, and from May to August a very severe fever epidemic was prevalent among the surrounding population, but none of the prisoners were affected. No recommendations for any improvement, &c., were made during the year. In May a prisoner was transferred to Sir Cowasjee Jehangeerjee's Lunatic Asylum at Hyderabad. Average strength 335, admissions 445, and deaths 21.

Hyderabad.

The ventilation of the Jail at Hyderabad is good, and the barracks are in an excellent order. Thirty strong prisoners were transferred to Nara Gang in June. The conservancy of the Jail and the personal hygiene of the prisoners during the year were good. There is surface-drainage but not quite sufficient for carrying rain-water off. The quality of food supplied was good, but the quantity insufficient. The water supply is sufficient but procured at great cost. Sufficient clothing was given to the prisoners during the year. None of the prisoners suffered from labour. The hospital accommodation was ample. For some time during May the weather was exceedingly close and hot with a north wind. From January to May small-pox was epidemic among the surrounding population, and affected as many as 28 prisoners. The Jail was entirely free from malarial fevers, from boils, from venereal and malarious diseases, which were largely prevalent among the surrounding population during the months of June, July and August. There occurred some few cases of measles in the Jail, and consequently sulphur was ordered to be burnt twice a day. No liberations or transfers of prisoners were directed during the year. Average strength 415, admissions 263, and deaths 20.

Shikárpur.

The barracks of the Jail at Shikárpur are in a good state and well ventilated. In the months of May, June, July, August and September, the prisoners slept outside the barracks and inside from October. The system of dry-earth conservancy is in force. The personal hygiene of the prisoners was good. The drainage of the interior of the Jail is unsatisfactory, but is in the hands of the Executive Engineer of the Division. The food was good in quality, but since the introduction of the reduced diet scale numerous complaints were raised against it, but the medical officer, in his remarks for the month of September says :—"As far as I can find from weight and appearance, there is as yet little cause of complaint." He also remarks in the month of December :—"The reduced diet is, in my opinion, amply sufficient for the workers in the factories, but, though there is no serious complaint with the extra mural workers, it is rather little for them as they lose slightly in weight and do not work so well as if better fed I think." The water supply is good and wholesome and sufficiently abundant. Clothing was suffiicient and adapted to the seasons. None of the prisoners suffered from labor. The hospital is conveniently situated and is quite sufficient for the requirements of the Jail. Lung diseases occurred most frequently, although in no single case were they in any way unfavourably influenced by any of the Jail conditions. Measles and mumps prevailed in the town and visited the Jail to a slight extent from January to April. No recommendations were made by the medical officer to the Civil Authorities during the year, and none of the prisoners were transferred or liberated on account of any disease. Average strength 487, admissions 165, and deaths 16.

Nara.

The temporary shed barracks for the accommodation of the Nara Gang were built on the usual plan and were quite suited to each season of the year. The conservancy and personal hygiene of the prisoners were good. The drainage was sufficient. The food was good and sufficient, although, no doubt, there were for a few months scanty supplies of vegetables and other antiscorbutics. The water-supply was good. The clothing of the prisoners was sufficient and well adapted to the different seasons. None of the prisoners suffered from the labour demanded of them. The hospital accommodation was temporary with the rest of the Jail. During the 1st half of the year scorbutic prevailed amongst the inmates of the Jail. None of the diseases were unfavourably influenced on account of any of the Jail conditions. No recommendations were made during the year. Forty-six prisoners were transferred to Kurrachee on account of the reduced state of their health. Average strength 412, admissions 622, and deaths 32.

Aden.

The barracks of the Aden Jail consist of two *baracoons* and are on every side open to the air. There is good ventilation. The barracks were over-crowded to a slight extent in September but no ill effects were produced. On the 1st of September there was a storm with rain, and on this account the buildings leaked badly. The dry-earth system of conservancy is in force. The prisoners were clean. There is surface-drainage, but no sewers in or around the Jail. The quality of the food supplied was good; but the reduced diet-scale which came into force on the 1st of July produced evil effects on the health of the prisoners. During the hot season each prisoner was allowed 1½ gallon of water per diem, while only 1 gallon was given him in the cold season. Since October the water for drinking purposes was obtained from the tanks, filled by the rains of September, which was certainly preferable, as compared with the brackish water, generally in use. None of the prisoners suffered from Jail labour. The hospital accommodation was good. None of the prevailing diseases were unfavourably influenced by any of the Jail conditions. There was only one case of cholera in October among the troops brought to this station, and small-pox was prevalent to a slight extent throughout the greater part of the year. No recommendations were made during the year. A convict was released on 21st April on account of an enlargement of the spleen. Average strength 78, admissions 48, and deaths none.

SECTION V.

GENERAL POPULATION AND VITAL STATISTICS.

The year 1877 will stand out prominently in the history of India as one in which Madras, Mysore, and the extensive districts comprising the Deccan and Southern Mahratta Country in the Bombay Presidency were attacked and desolated by Famine. So crushing and wide-spread a calamity must always leave its traces behind, and such are always most surely found when the vital statistics of the districts affected are compiled. The famine of 1877 forms no exception to this rule, and the following Section of this report will bear ample testimony to the misery that the population of the distressed districts in this Presidency encountered, and although not more than an approximate accuracy can be claimed for the figures given in the report, yet, there can be no doubt that there was never a time since the commencement of the registration of Births and Deaths when the deaths at all events in the famine districts have been from improved organisation so accurately reported as in the year 1877. This fact in reading the figures must be strictly borne in mind for the recorded death-rate, greatly increased as it undoubtedly was over what is believed to be the average rate of mortality, still was not really as great as is represented by a comparison of the results of 1876 and of previous years with those of 1877.

The Honourable Mr. Gibbs, C.S.I., in his minute on the famine has summarized the especial causes which largely contributed to the increased death-rate in the affected Districts. Ahmednagar, Sholápur, Kaládgi, and Dharwar, form the frontier collectorates of this Presidency, and they are for the most-part coterminous with the Nizam's Territories and they as well as Satara and Belgaum are intersected with Native States. There can be no doubt that the organization for famine relief operations in the Moglai and Native States was not on as good a footing as in British Territory and the consequent immigration into our collectorates of persons who had clung to their homes until actual starvation stared them in the face was one of the most difficult subjects the District Officers had to contend with, for, when these poor creatures arrived at our Relief Houses, it was too often found that they were beyond recovery and deaths among such must have largely swelled our mortuary returns. Then again the owners of cattle and others in the early part of the year in the hopes of finding fodder for their cattle emigrated in large numbers to more distant regions. Some led by false hopes of bettering themselves crossed the border into the Nizam's Territories, but the larger portion wandered through the Dharwar Districts as far as the Kanarese Jungles where a great number perished from fever and those who did escape were so enfeebled by repeated attacks of ague that many died after returning to their villages. Cholera too was very prevalent in these Districts as it had been for the two previous years whilst small-pox also was very fatal, and when the long-prayed-for rain did at length come, it fell in such torrents that the causes of Malaria became so intensified around villages that a severe and fatal type of remittent fever ensued. The water-supply of the Districts until the rain came was often times not only difficult to procure but when found was frequently most impure. This together with badly cooked and insufficient food and the consumption of grain frequently unfit for food which the people for want of fuel and cooking-pots often eat raw, induced bowel complaints which often terminated fatally, whilst the protracted insufficiency of good food induced such organic changes in the mucous membrane and in the absorbent glands of the alimentary canal that they became too diseased to perform their functions and the persons so afflicted were unable to digest food at all even when it was suitable and good.

Another great cause of increased mortality as pointed out by Mr. Gibbs, was the insuperable objection the people, especially the low caste Mhars and Mangs, entertained to leaving their own villages and their refusal to go to relief works or to the poor houses. No one but those who have actually seen the dogged

obstinacy of these people would believe the extreme difficulty the District Officers had to contend with in this respect. I have known cases where a gang of emaciated people were given cooked food and were sent in carts under a police guard with batta to purchase food on their journey, who after the first march or two refused to go further and who crawled back or attempted to do so to their villages. As another instance a Collector told me he had found two Mhars eating a dead dog, who declined to go to a Famine Relief work though there was one close by, saying they preferred to take their chance rather than work or leave their village.

To the above causes, I fear, I must add that as the famine increased in severity, the people became to a certain extent demoralized, and cases of wilful neglect of children on the part of their parents and of the aged and infirm on the part of their relatives were very numerous, and I have no doubt that much mortality among the very young and the old was due to this cause.

With these brief remarks the vital statistics of the year will now be given but it is necessary to call particular attention to the fact that by recent orders of the Secretary of State the population of each district, as given by the census of 1872, forms the basis of our calculations without adding, as was done last year according to the orders of the Government of India, an assumed increment of one per cent. per annum.

Births.

Annual Form No. 1. The Number of Births.

The total number of births recorded during 1877 was 3,11,661 or 33,823 less than that registered during the preceding year. The birth-rate according to the census population for the year was 19·26 per 1,000 which is 2·09 per mille less than the recorded birth rate for 1876.

The following table shews the number of male and female births registered in each year since 1872 :—

Years.	Number of Births Recorded.		
	Males.	Females.	Total.
1872	1,40,644	1,26,299	2,66,943
1873	1,52,520	1,37,799	2,90,319
1874	1,74,966	1,57,842	3,32,808
1875	1,78,892	1,61,937	3,40,829
1876	1,81,872	1,63,612	3,45,484
1877	1,64,262	1,47,399	3,11,661

As will be remarked there had until 1877 been a steady increase maintained from year to year which was no doubt caused by a gradual improvement in our registration system.

Ratio of female to male births.

The next statement shews the relative proportions of male and female births during the last 6 years from which it will be seen that the ratio of boys born alive has in each year been reported to be considerably in excess of girls :—

Years.	In every 100 born there were		For every 100 male births the female were
	Males.	Females.	
1872	52·69	47·31	89·80
1873	52·53	47·47	90·35
1874	53·77	46·23	90·21
1875	52·49	47·51	90·52
1876	52·64	47·36	89·96
1877	52·75	47·25	89·73

Birth-rate by Districts.

The birth-rate by districts is shewn in the following table:—

Year.	Registration Districts.	Kanara.	Násik.	Kaira.	Surat.	Belgaum.	Panch Mahals.	Khandesh.	Ameda-bad	Satara.	Tanna.	Ahmed-nagar.	Dhar-war.
1877	Birth-rate per 1,000.	29·44	25·71	25·53	24·79	23·88	23·34	22·71	22·68	22·30	22·19	21·71	21·46
1876	Birth-rate per 1,000.	29·44	27·78	23·20	22·37	29·36	19·17	22·61	20·04	26·70	19·79	31·56	26·91

Year.	Registration Districts.	Bombay City.	Broach.	Thar and Párkar.	Poona.	Kolába.	Ratna-giri.	Kaladgi.	Sholá-pur.	Kurra-chee.	Upper Sind, Frontier	Hydera-bad.	Shikár-pur.	For the year.
1877	Birth-rate per 1,000	21·29	20·76	18·51	16·70	16·03	15·42	14·05	12·75	8·95	8·02	7·27	6·83	19·26
1876	Birth-rate per 1,000	20·90	16·23	7·18	21·62	15·23	16·14	22·77	23·46	10·70	8·09	7·14	6·90	21·35

The highest birth-rate 29·44 per 1,000 of population is reported from Kanara. The lowest 6·83 from Shikarpur. In 11 out of the 24 Collectorates the birth-rates recorded for 1877 are in excess of those registered in the preceding year. In Kanara the birth-rate was the same as in 1876 but in each of the other Konkan Collectorates except Ratnagiri and in the Guzerat districts an increase is observed. In Broach this amounted to 4·54 per 1,000 over last year, but the registration even yet is defective there as the birth-rate recorded in 1877 only amounts to 20·76. In Khandesh (one of the districts affected by famine but in a less degree than the others) a slight increase in the birth-rate is also observed, 22·71 per 1,000 being recorded against 22·61 in 1876. In 2 of the Sind districts Thar and Párkar and Hyderabad the birth-rate for 1877 is higher than that for 1876. In Thar and Párkar the rise is considerable, as in 1877 a birth rate of 18·51 was returned whilst for the previous year it was only 7·18. No explanation of this increase has been given, but until the village system is introduced into Sind the registration of births and deaths must remain on an unsatisfactory footing. In the remaining 12 districts the birth-rates recorded during 1877 were less than those registered in 1876. Ratnagiri, Kurrachee, Shikárpur and the Upper Sind Frontier Collectorates are amongst these, but the following 8 Collectorate s comprise the remaining famine districts in some of which the decrease as compared with 1876 is very great and is as follows :—

Districts.	Decrease per 1,000.	Districts.	Decrease per 1,000.
Násik	2·07.	Sholápur...	10·71
Ahmednagar	9·85	Belgaum...	5·48
Poona	4·92	Dharwar...	7·45
Satara	4·40	Kaládgi	8·72

Doubtless this decrease in the birth-rate is for the most part to be ascribed to the effects of the famine. Indeed a lessened birth-rate must always be a necessary consequence of severe famine, for not only are the women at the child-bearing periods of life lessened in number by death and emigration from the affected districts but the debility caused by protracted privation reduces the chance of of their becoming mothers. The recorded decrease, however, in my opinion, is also partly due to neglect on the part of mothers in reporting, and of municipal and village officers in finding out births. Instances of great neglect as regards the latter have been brought to my notice during the year by Deputy Sanitary Commissioner, Dr. Nolan.

By months.

The following table shews the number of births recorded in each month since 1873 :—

Years.	January	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1873	20,915	17,884	20,990	21,017	23,453	24,700	27,714	26,440	26,481	27,916	27,153	25,656	290,319
1874	24,229	21,405	24,631	24,712	26,643	29,758	30,888	31,892	30,353	31,748	29,349	27,200	332,808
1875	26,202	24,469	29,384	29,852	29,914	29,052	31,262	29,406	28,438	27,455	28,583	26,212	340,829
1876	24,304	23,914	28,007	27,482	28,645	30,106	33,325	31,338	31,220	30,392	29,729	27,022	345,484
1877	24,386	22,446	27,622	27,756	30,499	28,826	29,490	25,895	24,924	24,480	23,311	22,026	311,661

The maximum rate was attained in May. July holds the 2nd place, but the marked decrease in the number of births during the last 5 months of the year is very striking, the minimum for the year being reached in December, though until this year it had always been observed in the month of February.

Birth-rates in Towns and Cantonments.

The following table shews the birth-rates in the principal towns and cantonments as well as the excess of births over deaths, and the excess of deaths over births per 1,000 of population :—

	Towns.													
	Ahmedabad.	Hyderabad.	Broach.	Satara.	Belgaum	Jacobabad.	Karwar.	Umerkote.	Alibag.	Násik.	Bombay City.	Kaládgi.	Shikarpur.	Vingorla.
Population ..	116,873	35,272	36,932	24,484	26,947	5,205	13,263	3,999	5,473	22,436	6,44,405	6,592	38,107	14,996
Birth Rate ..	42·03	29·63	26·94	26·91	26·31	26·13	25·18	22·76	22·29	21·85	21·29	21·09	15·30	14·60
Excess of Births over Deaths ..	..	..	..	..	..	...	..	0·23	..	..	..	..	..	..
Excess of Deaths over Births ..	5·75	14·71	7·80	16·22	52·99	9·60	4·52	..	15·35	42·84	30·26	249·24	5·72	11·74

	Towns.										Cantonments.				
	Karachee.	Dharwar.	Ahmednagar.	Surat.	Kaira.	Dhulia.	Sholápur.	Godra	Tanna	Poona City.	Ahmedabad.	Deolali.	Ahmednagar.	Belgaum.	Poona & Kirkee.
Population ..	53,526	27,136	32,841	107,149	12,681	12,489	53,403	10,641	14,299	90,436	1,883	894	3,983	5,330	28,45
Birth rate ..	14·42	13·08	12·88	12·85	10·32	10·25	7·00	6·01	4·06	3·25	73·29	26·85	12·05	4·50	2·67
Excess of Births over Deaths ..	..	..	..	..	0·46	..	..	..	..	..	11·68	..	...	..	..
Excess of Deaths over Births ..	5·99	51·85	50·45	12·50	..	9·93	72·13	13·80	29·23	35·47	..	13·42	12·55	59·10	30·02

The following towns return the lowest birth-rates :—

In Poona City a birth-rate of 3·25 is returned against 5·91 in the preceding year, from Tanna one of 4·06, from Godhra one of 6·01, from Sholápur 7. The registration of such birth-rates in some of the principal towns is extremely discouraging, as there must be an utter indifference, on the part of those whose duty it is to look to these matters, to this important subject.

Among the cantonments, Poona and Kirkee Cantonments return a birth-rate of only 2·67, Belgaum one of 4·56, Ahmednagar 12·05. In cantonments which are under the control and supervision of Military Authorities, surely it is not unreasonable to expect, that greater attention should be paid to the orders of Government. From Ahmedabad Cantonment in 1877, as in the preceding year, a very high birth rate 73·29 is returned.

In all towns except Kaira and Umerkot, and in all the Cantonments except Ahmedabad an excess of deaths over births is reported.

Deaths.

Number of Deaths.

The total number of deaths recorded during the year under report among the general population of the Bombay Presidency amounted to 627,708 or an increase over the number registered in 1876 of the high figure of 260,048. The recorded death-rate therefore for the Presidency amounted to 38·79 per 1,000. Although there can be no doubt that much of the increased mortality must be ascribed to disease attacking a people enfeebled by long continued privation, yet it would not be right in my opinion to ascribe the whole of it to the effects of famine, for not only was there a severe epidemic of cholera and small-pox, but, as will be seen further on, the year was an unexceptionally unhealthy one, even in those districts where there was no famine, and it must be remembered that, as has been noticed above, there can be no question that the increased attention paid to the registration by the large staff of village inspectors throughout the famine districts has led to much greater accuracy in the number of deaths returned in 1877. With the exception of the comparatively few cases of persons dying in the jungles far away from any village, I believe that the great majority of deaths was reported. Indeed, whilst examining village registers in the famine districts, I have found the Patels very fearful lest they should be blamed for not reporting deaths.

Annual Form II. Deaths according to Districts.

The deaths according to Districts and Sexes, are shewn in the next table and arranged in order of highest rate of mortality :—

Districts.	Number of Deaths.			Ratio per 1,000 of Population.		
	Males.	Females.	Total.	Males.	Females.	Total.
Kaládgi	47,288	35,765	83,053	113·23	89·77	101·77
Dharwar...	48,054	35,803	83,857	94·10	74·28	84·87
Belgaum...	40,095	30,149	70,244	83·72	65·56	74·83
Kanara	11,714	9,847	21,561	56·75	51·29	54·12
Bombay City	17,596	15,627	33,223	44·02	63·86	51·55
Satara	29,051	22,982	52,033	53·86	44·05	49·04
Sholápur	19,923	15,131	35,054	53·95	43·39	48·81
Ahmednagar	17,207	13,684	30,891	43·60	36·14	39·94
Násik	12,956	11,510	24,466	36·76	34·37	35·59
Poona	16,860	13,959	30,819	36·11	31·69	33·96
Tanna	12,665	10,946	23,611	28·84	26·81	27·86
Surat	8,036	7,289	15,325	26·41	24·07	25·24
Khandesh	14,073	11,812	25,885	26·46	23·75	25·16
Broach	4,149	3,602	7,751	22·73	21·47	22·12
Ratnágiri	11,112	10,177	21,289	22·63	19·27	20·89
Ahmedadad	9,241	7,768	17,009	21·06	19·87	20·50
Kaira	8,637	6,759	15,396	20·60	18·59	20·19
Colába...	3,322	2,932	6,254	18·66	17·00	17·85
Kurrachee	4,157	2,808	6,965	17·31	15·31	16·44
Panch Máhals	1,972	1,585	3,557	15·61	13·85	14·77
Hyderabad	5,277	3,533	8,810	13·27	10·90	12·20
Thar and Párkar	1,422	1,087	2,509	13·75	14·03	13·88
Shikárpur	4,341	3,076	7,417	10·22	8·74	9·55
Upper Sind Frontier ...	382	347	729	7·57	8·78	8·10
Total ...	3,49,530	2,78,178	6,27,708	41·32	36·01	38·79

From this it will be seen that the highest death-rates, though principally confined to the famine districts were not entirely so, for in Bombay the death-rate for the year reached the extremely high rate of 51·55 per 1,000 and it stands fifth on the list, and in Kanara which stands fourth in the list it was as high as 54·12.

The following table shews the excess in the affected districts over the recorded rate of last year.

Districts.	Population according to Census of 1872.	No. of deaths registered in		Ratio per 1,000 of population in		Excess during 1877 in	
		1876.	1877.	1876.	1877.	Number.	Ratio per 1,000.
Kaládgi	816,037	20,628	83,053	25·28	101·77	62,425	76·49
Dharwar	988,037	31,726	83,857	32·11	84·87	52,131	52·76
Belgaum	938,750	31,021	70,244	33·04	74·83	39,223	41·79
Satara	1,061,002	24,775	52,033	23·33	49·04	27,258	25·71
Sholápur	718,034	18,339	35,054	25·54	48·81	16,715	23·27
Ahmednagar	773,938	20,640	30,891	25·35	39·94	10,251	14·59
Poona	907,235	19,841	30,819	21·87	33·96	10,978	12·09
Khandesh	1,028,642	20,511	25,885	19·94	25·16	5,374	5·22
Násik	687,353	16,086	24,466	24·95	35·59	8,380	10·64
Total ...	7,919,028	203,567	436,302	25·71	55·09	232,735	29·39

These tables shew that the largest increase in mortality is recorded to have taken place in Kaládgi, where it amounted to 7·65 per cent of population over the death-rate of the preceding year, so that in Kaládgi the mortality in 1877 was more than quadruple that recorded in 1876. Too much stress must not be placed on this statement, as there can be no doubt that until 1877 the registration of deaths was most imperfect in Kaládgi as well as in other districts. According to the census population returns, though they too probably give a lesser population than what was really the case, yet accepting them, we find that the total recorded deaths in Kaládgi amounted in 1877 to 10·18 per cent. of the inhabitants. Taking 3·5 per cent. as the average death-rate in this country, it will be seen at once how high the death-rate has been. After Kaládgi, Dharwar suffered most severely, the excess in the rate over 1876 being equal to 5·3 per cent., and the ratio of total annual deaths to population being 8·5 per cent. In fact the death-rate bears a very marked proportion to the degree of intensity of famine in each District.

Mortality of Males and Females.

The death-rate among males in every district exceeded that among females except in Bombay City and Thar and Párkar. In Bombay City the rate for males was 44·02 against 63·86 for females; this difference was observed in last year's report also. For Thar and Párkar, the death-rates of males and females were 13·75 and 14·03 for 1,000 respectively.

The next table shews the death-ratios by sexes in each division of the Bombay Presidency.

Divisions.	Death Ratio per 1,000.		
	Males.	Females.	Mean.
Northern Deccan	38·29	33·04	35·70
Southern do.	83·31	66·13	74·74
Konkan	32·90	32·05	32·47
Guzerat	21·78	20·31	21·04
Sind	12·64	10·93	11·78
Total ...	41·32	36·01	38.79

The lowest death-rate is found in Sind, but as has been before remarked the mortuary statistics of this province are untrustworthy. In the Northern Division, comprising the Collectorates of Khandesh, Násik, Ahmednagar, Poona and Sholápur, the recorded death-rate was closely approximate to what we may consider average; but in the Southern Division, comprising the Kaládgi, Dharwar, Belgaum and Satara Collectorates it was more than double what may be accepted as the ordinary rate. In the Konkan and Guzerat Divisions, the death-rate as recorded was below what is believed to be the general average in this Presidency.

Annual Form No. III. Deaths according to months.

The following number of deaths from epidemics and all causes took place in each quarter of the year 1877.

Quarters.	Epidemics.	All causes except Epidemics.	Total of all causes.	Epidemics. Mean of 5 years.	All causes except Epidemics. Mean of 5 years.	All causes. Mean of 5 years.
1st Quarter	29,960	88,351	118,311	5,551	72,909	78,460
2nd do.	34,774	114,755	149,529	10,990	67,399	78,389
3rd do.	16,449	182,466	198,915	10,234	77,072	87,306
4th do.	3,414	157,539	160,953	3,515	81,484	84,999
Total ...	84,597	543,111	627,708	30,290	298,864	329,154

The highest mortality from epidemic diseases occurred in the 2nd quarter of the year, and next to it in the 1st. In 1876 the larger number of deaths from these causes were recorded in the 2nd, and next to it in the 3rd quarter of the year. As usual, during the 4th quarter there was a marked diminution of epidemic disease. From all causes the highest mortality, as usual, took place in the 3rd quarter of the year. The mortality in the latter half of the year exceeded that of the previous 6 months by 92,028.

The following table shows the ratio of mortality per 1,000 of population by districts in each month of 1877 as contrasted with 1876:—

Districts.		January.	February.	March.	April.	May.	June.	July.	August.	September.	October	November.	December.	Total.
		Ratio per 1,000.	Ratio per 1,000.	Ratio per 1,000.	Ratio per 1,000.	Ratio per 1,000.	Ratio per 1,000.	Ratio per 1,000.	Ratio per 1,000.	Ratio per 1,000.	Ratio per 1,000.	Ratio per 1,000.	Ratio per 1,000.	Ratio per 1,000.
Khandesh ...	1876...	1·37	1·22	1·51	1·39	1·44	1·26	1·35	1·92	1·93	1·66	2·20	2·67	19·94
	1877 ..	2·99	2·44	2·56	2·53	2·07	1·35	1·90	3·08	1·97	1·40	1·52	1·34	25·16
Násik	1876...	2·00	1·55	1·62	1·75	1·88	1·60	2·30	2·70	2·20	1·27	2·57	2·99	24·95
	1877...	3·17	2·45	3·18	3·00	2·68	2·25	3·15	3·83	3·40	2·90	2·90	2·76	35·59
Ahmednagar ...	1876...	1·38	1·36	1·28	1·48	1·66	1·66	2·83	4·16	3·84	2·46	2·32	2·24	25·35
	1877...	2·17	1·97	2·83	2·76	3·08	3·26	4·38	4·27	4·78	4·30	3·49	2·62	39·94
Poona	1876...	1·50	1·21	1·45	1·58	1·53	1·67	2·04	2·82	2·37	1·81	1·89	1·97	21·87
	1877...	2·10	1·78	2·63	2·90	3·30	2·91	3·79	3·42	2·76	2·86	2·79	2·71	33·95
Sholápur ...	1876 .	1·50	1·26	1·21	1·39	1·58	1·60	4·50	3·91	2·65	2·13	2·02	1·80	25·54
	1877...	1·85	1·96	1·97	2·20	2·94	3·46	4·36	6·66	8·02	6·33	6·04	3·00	48·81
Satara... ...	1876...	1·38	1·35	1·42	1·33	1·40	1·81	3·23	3·22	2·52	2·03	1·79	1·85	23·33
	1877...	1·71	1·56	2·54	4·53	4·61	4·95	5·86	6·19	5·18	4·78	4·07	3·04	49·04
Belgaum ...	1876...	2·29	2·19	2·60	2·93	3·77	3·41	2·93	2·64	2·18	2·15	2·27	3·37	33·04
	1877...	4·00	3·84	5·74	5·24	6·65	7·30	8·34	9·86	8·28	6·06	4·80	4·71	74·83
Dharwar ..	1876...	2·91	3·00	4·03	3·16	2·70	2·34	2·09	2·00	2·08	2·07	2·41	3·42	32·11
	1877...	4·59	5·20	5·90	5·24	5·42	6·02	8·13	10·70	10·88	8·85	7·26	6·70	84·87
Kaládgi ...	1876...	1·41	1·36	2·00	2·40	3·35	2·62	2·59	2·12	1·90	1·89	1·85	1·86	25·28
	1877...	2·57	3·01	4·36	6·21	7·48	7·94	10·21	11·95	14·17	13·33	12·79	7·79	101·77
Kanara ...	1876...	3·10	2·81	2·80	2·55	2·19	2·20	2·40	3·00	2·59	2·40	2·60	3·21	31·90
	1877...	3·69	2·91	4·40	3·93	3·35	3·13	4·74	6·36	3·29	5·35	4·91	4·55	54·12
Ratnágiri ...	1876...	1·31	1·38	1·49	1·27	1·16	1·15	1·36	1·38	1·20	1·02	1·16	3·35	15·29
	1877...	1·37	1·28	1·39	1·53	1·38	2·26	3·06	2·40	1·83	1·39	1·36	1·38	20·89
Kolába ...	1876..	1·05	0·73	1·08	1·00	1·27	1·21	1·31	1·30	1·08	0·93	0·75	1·01	12·83
	1877...	1·27	0·94	1·56	1·31	1·30	2·66	2·11	2·12	1·27	0·94	1·09	0·96	17·85
Bombay City ..	1876..	2·46	3·01	4·15	3·20	2·70	2·16	2·38	2·40	2·12	2·11	2·13	2·85	31·90
	1877...	3·19	3·46	4·66	5·36	5·47	5·17	4·29	4·50	4·47	4·45	3·37	3·52	51·55

		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
		Ratio per 1,000.	Ratio per 1,000.	Ratio per 1,000.	Ratie per 1,000.	Ratio per 1,000.	Ratio per 1,000.	Ratio per 1,000.	Ratio per 1,000.	Ratio per 1,000.	Ratio per 1,000.	Ratio per 1,000.	Ratio per 1,000.	Ratio per 1,000.
Tanna ...	1876...	1·90	1·72	1·51	1·40	1·46	1·51	1·25	1·85	1·70	1·41	1·64	1·95	19·42
	1877...	1·79	1·71	1·88	1·96	2·79	2·42	2·64	2·80	2·27	2 06	2·37	3·14	27·86
Surat	1876...	2·72	2·34	2·41	2·03	2·50	2·03	2·16	2·04	1·89	1·67	2·16	2·05	26·14
	1877...	2·43	2·36	3·23	2·65	2·03	1·74	1·85	2·29	1·84	1·67	1·68	1·45	25·24
Broach ...	1876...	1·93	1·73	1·55	1·68	1·91	1·84	2·55	2·06	1·55	1·50	1·90	1·43	21·60
	1877...	1·34	1·73	2·62	2·63	2·32	1·53	1·73	1 52	1·53	1'80	2·05	1·43	22·12
Kaira	1876...	1·46	1·50	1·59	2·18	2·81	2·29	2·02	1·81	1·91	1·94	1·97	1·66	23·19
	1877..	1·45	1·30	1·76	1·83	1·68	1·48	1·61	1·49	1·48	1·77	2·05	1·77	20·19
Panch Máhálś..	1876...	1·81	1·37	1·78	1·31	2·15	1·73	2·18	1·41	1·64	1·50	2·33	1·88	21·53
	1877...	1·62	0·97	1·52	1·28	0·96	1·10	1.32	1·05	1·03	0·85	1·57	1·50	14·77
Ahmedabad ...	1876...	2·04	2·12	2·80	3·23	2·63	2·02	1·49	2·56	2·21	1·93	1·93	1·85	26·95
	1877...	1·71	1·51	2·02	2·04	1·86	1·45	1·35	1·29	1·42	1·68	2·17	2·00	20·50
Kurrachee ...	1876...	1·45	1·34	1·07	0·90	0·75	0·76	0·77	0·92	0·98	1·42	2·15	2·40	14·92
	1877...	1·89	1·77	1·63	1·36	1·27	1·07	0·97	1·00	0·93	1·36	1·42	1·71	16·44
Hyderabad ...	1876...	1·13	0·98	0·69	0·57	0·58	0·44	0·50	0·49	0·69	1·02	1·42	1·45	10·19
	1877...	1·46	1·40	1·49	1·12	0·95	0·70	0·64	0·71	0·74	0·85	0·97	1·17	12·20
Thar & Párkar.	1876...	0·52	1·64	0·78	0·59	0·75	0·85	0·56	0·57	0·75	0·93	0·86	1·34	10·29
	1877...	0·99	1·37	1·36	1·48	1·37	0·84	0·79	0·66	0·92	0·87	1·06	2·15	13·88
Shikárpur ...	1876...	1·03	0·95	0·95	0·68	0·59	0·55	0·44	0·49	0·62	1·22	1·70	1·39	10·60
	1877...	1·16	0·88	0·88	0·80	0·75	0·61	0·65	0·61	0·66	0·87	0·85	0·83	9·55
Upper Sind Frontier.	1876...	1·48	0·67	1·02	0·69	0·62	0·62	0·68	0·40	0·56	1·16	1·32	1·22	10·45
	1877...	0·96	0·86	0·91	0·66	0·78	0·57	0·59	0·67	0·44	0·53	0.52	0·62	8·104
Total...	1876...	1·74	1·66	1·87	1·82	1·91	1·74	2·03	2·19	1·93	1·75	1·88	2·17	22·76
	1877...	2·30	2·19	2·83	2·96	3·12	3·16	3·79	4·34	4·17	3·66	3·41	2·85	38·79

Khandesh.

In Khandesh the mortality which had begun to rise on account of an epidemic of small-pox in November 1876 continued high from the same cause in the early months of 1877. In June the rate suddenly fell to the minimum of the year, 1,393. It rose slightly in July, when an outbreak of cholera occurred, and attained its maximum in August, when 3,183 deaths, were recorded: of these 986 were due to cholera. In September the cholera subsided, and the rate began to fall and continued to do so until the end of the year. The annual rate of recorded mortality for Khandesh is 25·16 per 1,000.

Nasik.

In the Násik Collectorate small-pox which had commenced in the previous November caused a very high death rate in the early months of 1877. The minimum mortality was recorded in June when 1,550 deaths were registered. The rate then began to rise, the maximum for the year being recorded in August, when 2,635 deaths, were registered. 620 of these deaths were due to cholera. The rate then continued to fall and continued to do so until the end of the year. The annual death-rate in this Collectorate was 35·59 per 1,000 against 24·95 of the previous year.

Ahmednagar.

In Ahmednagar the death-rate, which during the latter end of 1876, had been high, fell in January and February, when the minimum rate for the year, 1·97, took place, but it rose considerably in the following month and continued to increase until July, when 3,386 deaths were recorded. In August a slight fall took place, but in September 3,701 deaths, were registered. In October the mortality-rate began to fall and continued to do so until the end of the year. The annual rate, 39·94 per 1,000, is 14·59 per mille in excess of the recorded rate of 1876. Cholera, small-pox, fever and bowel complaints were in excess of the average.

Poona.

In the Poona Collectorate in January there were 1,909 deaths recorded, but during February 1,619 deaths were registered. This was the minimum for the year. In March however cholera, which had been prevailing since the commencement of the year, increased in intensity. Small-pox attained its maximum, 340 deaths having been reported from this one cause alone. The rate steadily increased till May. In June it

fell slightly, but in the following month it rose to the maximum of the year 3·79 per 1,000: 3,441 deaths having taken place, of which 899 were from cholera and 1,766 from fever. The mortality in each succeeding month continued to fall. The annual death-rate in this Collectorate was 33·96 against 21·78 of the previous year.

Sholápur.

In the Sholápur Collectorate the recorded mortality was lower in January than in any other month of the year, but it continued to rise steadily month by month until September, when the maximum number of deaths, 5,758, was recorded. The rate then fell and in December was only 3·00 per 1,000. The annual rate, as recorded, amounts to 49 per 1,000. Cholera was comparatively speaking not very virulent in this Collectorate during the year, as only 1,354 deaths from it were reported. Smallpox accounted for 1,080 deaths; 16,941 persons, equal to 23·59 per 1,000 of population, were reported to have died from fever; whilst 5,016, or 6·09 per 1,000, fell victims to bowel complaints.

Satara.

In the Satara Collectorate the mortality in January amounted to 1,812, and in February there was a slight fall of 155 in the number of deaths; but in March the mortality rose from 1,657 to 2,700, and in April the increase in the number of deaths amounted to as much as 2,113. In May the mortality registered was almost the same as that in the preceding month, being however, 75 in excess. In June, a further increase of 368 took place; in July the excess over the preceding month was 965 and in August 351. The mortality in the last named month was the maximum for the year, 6,572 deaths having been recorded in it. In September 5,499 persons died, in October 5,071, in November 4,319, and in December 3,225. The minimum for the year was recorded in February. The total deaths for the year were 52,033 against 24,775 of the preceding year.

Belgaum.

In the Belgaum Collectorate, during January and February, the recorded deaths were 3,744 and 3,604 respectively, the latter being the minimum for the year. In March the mortality rose to 5,393, being an excess of 1,789 over the preceding month. In April there was a slight fall of 474 deaths, but from May to August the figures showed a steady increase month by month. It was in this last named month that the maximum for the year (9,255) was recorded. During the remainder of the year a gradual fall month by month took place.

Dharwar.

In the Dharwar Collectorate the total mortality in January was 4,538. In February and March there was a gradual increase in the number of deaths, but in April a fall, amounting to 657, took place. In May the mortality again rose, the deaths registered during the month being 5,358 against 5,177 of the preceding month. A similar increase also took place in June, when 5,945 deaths were registered. But in July the mortality rose to 8,034 and in August it was as high as 10,576. The deaths during September, though in themselves very high, showed an excess of only 177 deaths over the previous month, and were the maximum for the year. The mortality from October to December showed a steady decrease month by month.

Kaládgi.

In the Kaládgi Collectorate the fewest number of deaths 2,100 took place in January, but the mortality in each succeeding month increased very greatly until it reached the maximum for the year in September, when 11,555 persons died. It then began gradually to decline, and in December 6,336 deaths were registered. The total deaths in this Collectorate during the year amounted to 83,053. Of these 7,124 were due to cholera, 801 to small-pox, 41,248 to fevers, 6,102 to bowel complaints, and the remainder to injuries (488) and other causes (27,290). The annual rate per 1,000 of population was 101·8

Kanara.

In the Kanara Collectorate the minimum mortality was recorded in February, when 1,160 deaths were registered, the maximum taking place in August, when 2,536 persons died. The annual rate was 54·12 or 22·22 per 1,000 more than in 1876.

Ratnágiri.

In the Ratnágiri Collectorate the lowest mortality took place in February, when 1,311 deaths were registered, and the highest in July, when 3,215 were recorded.

Kolába.

In the Kolába Collectorate the lowest mortality took place in February, when 330 deaths were reported, the maximum taking place in June, when 941 deaths occurred, 544 of these being due to cholera.

Bombay City.

In the City of Bombay the heaviest mortality ever recorded since the commencement of the registration of deaths in 1849 took place in 1877, as the very large number of 33,223 deaths were registered. The highest number ever recorded before was in 1865, when 28,531 persons died, and in 1864 when 25,015 deaths were registered, but these numbers have never until 1877 even been approached since the establishment of the Public Health Department in the latter end of 1865, as will be seen from the following table, which also shows that the mortality in the City of Bombay has been steadily rising since 1875 :—

Years.	No. of deaths.	Years.	No. of deaths.
1864	25,015	1871	16,064
1865	28,531	1872	18,990
1866	16,865	1873	16,092
1867	15,500	1874	15,132
1868	15,702	1875	18,295
1869	17,713	1876	20,553
1870	14,888	1877	33,223

The annual mortality equalled a rate of 51·55 per 1,000 of population. The year from its commencement was an unhealthy one, and the local causes of disease were intensified by the immigration of distressed persons in large numbers from the famine districts. In estimating, however, the proportion which the deaths among these persons bear to the total mortality, it should be remembered that only 31 per cent. of the population living in the island at the time of the census of 1872, were returned as having been born in Bombay, and that the great majority of its inhabitants in ordinary years are merely sojourners for a long or short time, as the case may be, in the city, attracted to it for the purposes of commerce, trade or labour, and therefore any deduction drawn from the recorded place of births, as stated in the death reports, is not to be accepted as showing that the deceased person was a stranger who had recently come to Bombay. A much more correct estimate of the mortality amongst strangers to the city would, in my opinion, have been possible, if the information provided in the heading in the Death Report "Duration of Residence in Bombay" had been tabulated and published.

In January there were 2,056 deaths. In February an increase of 171 took place and in March, April and May, the deaths were 3,005, 3,457 and 3,526 respectively. A slight decrease is observed to have taken place in June, but the mortality in each remaining month, though not so high as in the preceding months, was still extremely great, the lowest in the latter half of the year being recorded in November, when 2,174 deaths were registered.

Tanna.

In the Tanna Collectorate the lowest mortality took place in February, when 1,451 deaths were reported, and the maximum in December, when 2,061 deaths were registered. Except

in the first 2 months of the year, the mortality was in each month considerably in excess of that of the previous year, the annual rate being 8·44 per 1,000 more than in 1876.

Surat. In the Surat Collectorate the highest (1,960) and lowest (882) mortalities were registered in March and December respectively. The first 6 months of the year were more unhealthy than the latter half.

Broach. In the Broach Collectorate the lowest mortality took place in January, when 470 deaths were registered. The highest mortality was returned in April (924) and after it in March (918).

Kaira. In the Kaira Collectorate the highest and lowest mortalities being 1,608 and 1,005 were recorded in November and February respectively.

Panch Máhals. The mortality during the year in the Panch Mahals was only 3,557, of which the maximum 391 and minimum 204 were registered in January and October respectively.

Ahmedabad. In the Ahmedabad Collectorate the year commenced with 1,422 deaths being reported during January, but in February the mortality fell, being 169 less than in the preceding month. In March however there was a sudden rise, the registered mortality for that month amounting to 1,675. In April the deaths were nearly the same as in the preceding month, being only 20 in excess. From May to August the number of deaths showed a steady decrease month by month. From September to November there was a gradual rise in the number of deaths recorded each month, and in December there was again a fall. Except in the months of November and December the mortality in each month of 1877 was considerably less than the corresponding mortality in 1876, the annual rate being 6·45 per 1,000 less in 1877 than in the previous year.

Kurrachee. In the Kurrachee Collectorate the lowest mortality occurred in September, when 396 deaths took place, and the highest in January, when 801 deaths were recorded.

Hyderabad. In the Hyderabad Collectorate the mortality during the first 3 months was between 1,000 and 1,100, but in April a considerable decrease was observed, the recorded deaths having fallen down from 1,080 to 808. The number of deaths then continued decreasing month by month until the minimum was reported in July. The number of deaths rose slightly in August and during each succeeding month it continued to be on the increase till the end of the year. The maximum mortality for the year, 1,080, was recorded in March.

Thar and Párkar. In the Thar and Párkar, in August only 119 deaths, being the minimum for the year, were registered, whilst the highest mortality was returned in December, the reported number of deaths amounting to 389.

Shikárpur. In the Shikárpur Collectorate the minimum number of deaths for the year (474) was recorded in June, and next to it (475) in August. The highest mortality for the year was reported in January (902).

Upper Sind Frontier. The total recorded mortality for the year in Upper Sind Frontier was 729 only. The highest number (86) was reported in January, and next to it (82) in March. The lowest number of deaths was returned during the month of September.

Annual Form No. IV—Deaths according to ages.

The classification of deaths, according to age in the form ordered by the Government of India, can not be given in this report, as the District officers have not been able to supply this information. They are, therefore, tabulated according to the old form, and the following table shows the mortality according to age since 1873. It will be remarked that a marked rise has taken place in 1877 under each period of life :—

Years.	Infants (unable to walk under 1).	Children (between 1-12).	Adults (12-50).	Old people (50 and upwards).	Total.
1873	45,47 3	71,622	71,193	96,609	284,897
1874	49,94 5	70,965	67,413	90,329	278,652
1875	68,696	103,743	122,241	81,038	375,718
1876	68,596	93,404	121,296	84,964	368,260
Mean	58,177	84,933	95,536	88,235	326,881
1877	86,787	152,290	232,359	156,272	627,708
Increase per cent. in 1877 over the mean...	49·18	79·31	143·22	77·11	92·03

By Districts.

The deaths, according to ages in each District, are shown in the subjoined statement :—

Districts.	Infants children unable to walk.. (under 1 year).			Children.			Adults.			Old people.			Total.	
	Number of Deaths.	Ratio per 1,000 on total Population.	Percentage on total Deaths.	Number of Deaths.	Ratio per 1,000 on total Population.	Percentage on total Deaths.	Number of Deaths.	Ratio per 1,000 on total Population.	Percentage on total Deaths.	Number of Deaths.	Ratio per 1,000 on total population.	Percentage on total Deaths.	Number of Deaths.	Ratio per 1,000 on total population.
Khandesh	7,834	7·58	30·26	7,896	7·66	30·53	6,220	6·08	24·05	3,938	3·32	15·21	25.885	25·16
Násik	5,740	9·80	27·55	7,549	10·97	30·85	6,746	9·81	27·57	4,431	6·45	28·11	24.466	35·59
Ahmednagar	4,795	6·20	15·53	8,182	10·57	26·50	8,550	11·03	27·66	9,364	12·07	30·32	30,891	39·94
Poona	2,461	2·71	7·92	8,327	9·17	27·05	12,718	14·02	21·27	7,313	8·06	23·74	30,819	33·96
Sholápur	2,914	4·06	8·31	8,526	11·87	24·32	12,886	17·95	36·76	10,728	14·94	30·60	35,054	48·81
Satara..	5,039	4·75	9·68	14,012	13·20	26·93	14,230	13·41	27·35	19,752	17·67	36·04	52,033	49·04
Belgaum	5,815	6·19	8 28	20,263	21·59	28·84	24,637	26·28	35·08	19,529	20·83	27·30	70,244	74·83
Dharwar	8,501	8·71	10·14	21,244	21·50	25·03	32,834	34·24	38·25	21,278	21·54	26·57	83,857	84·87
Kaládgi	6,773	8·30	8·12	16,221	19·88	19·51	39,019	47·81	47·07	21,040	25·78	25·32	83,053	101·77
Kanara	3,025	7·59	14·04	4,037	10·18	18·87	10,334	26·00	47·88	4,145	10·41	19·22	21,561	54·12
Ratnagiri	1,528	1·50	7·18	3,470	3·40	16·30	8,435	8·25	39·62	7,856	7·76	36·94	21.289	20·89
Kolába	810	2·31	12·95	1,623	4·63	25·95	3,121	8·91	49·91	700	1·99	11·19	6,254	17·85
Bombay City	7,781	12·08	23·41	7,386	11·44	22·23	13,609	21·12	40·97	4,447	6·90	13·47	33,223	51·55
Tanna...	4,034	4·72	17·08	6,183	7·29	26·19	9,071	10·66	38·28	4,363	5·15	18·46	23,611	27·86
Surat	3,149	5·19	20·55	4,109	6·77	26·68	5,227	8·61	34·31	2,840	4·68	18·53	15,325	25·24
Broach	1,978	5·65	25·52	2,101	5·99	27·11	2,347	6·70	30·28	1,325	3·78	17·10	7,751	22·12
Kaira	5,141	6·57	33·39	2,075	2·65	13·48	4,746	6·06	30·83	3,434	4·39	22·30	15,396	20·19
Punch Máhals	690	2·36	19·40	802	3·33	22·55	1,216	5·51	34·19	849	3·53	23·86	3,557	14·77
Ahmedabad	4,001	4·81	23·52	4,426	5·34	26·02	5,254	6·33	30·84	3,328	4·01	19·57	17,009	20·50
Kurrachee	1,280	3·02	18·38	1,061	2·51	15·26	3,119	7·36	44·68	1,505	3·55	21·69	6,965	16·44
Hyderabad	1,685	2·33	19·13	1,242	1·72	14·07	3,625	5·02	41·15	2,258	3·13	25·63	8,810	12·20
Thar and Párkar	566	2·56	21·79	319	1·45	12·36	666	2·68	27·55	958	4·50	38·30	2,509	11·73
Shikárpur	1,160	1·50	15·91	1,131	1·46	15·55	3,381	4·36	45·57	1,745	2·27	23·53	7,417	9·55
Upper Sind Forntier ..	87	0·97	11·93	88	0·98	12·07	408	4·53	56·00	146	1·62	20·02	729	8·10
Total ..	86,787	5·36	13·85	1,52,290	9·46	24·21	2,32,359	14·35	37·01	1,56,272	9·65	24·93	6,27,708	38·79

In the whole Presidency the mortality among infants is stated to have amounted to 5·36 per 1,000 of total population and to have formed 13·85 per cent. of total deaths. The deaths of infants bear a relatively higher ratio to total deaths in Kaira, where they formed 33 per cent. of total mortality. In Bombay City, where we know the returns of the number of deaths are approximately correct, they formed 23·41 per cent. of total deaths.

Among children up to 12 years of age, higher ratios are seen in the collectorates, especially in the Famine Districts. Among adults and old people the highest ratios are found in the Kanarese-speaking districts, notably in Kaládgi, where the mortality among adults registered was 47·81 per 1,000 of population, and that for old people 25·78 per mille.

Annual Form No. V.—Deaths according to classes.

The annual form ordered by the Government of India divides the classes, under which the deaths of the civil population are tabulated, into the following classes:—Mahomedans, Hindoos, Christians and other classes. The class Hindoos includes Jains and Buddhists, as well as all castes, even the lowest professing Hinduism, but in some districts the deaths registered under the heading "other classes" are so numerous that I think it is probable that the deaths of some of the low caste tribes of Hindoos have been included in it. This class should include in this Presidency only the deaths of Jews, Parsees, Chinese, and perhaps a few others. It is much to be regretted that it is impossible to say how many low caste Hindoos died during the year, and, although Government considers that it is doubtful whether any additional accuracy would be gained in the mofussil by subdividing the Hindoos according to the castes that have so many years been adopted in the mortuary tables, drawn up by Dr. Leith for the city of Bombay, yet I would venture respectfully again to urge that the returns should at all events differentiate between Hindoos of a higher caste and the low caste tribes, such as Bhungees, Chambars, Dhers, Mahars, Mangs, Mochees, Purwaris, who form such a numerous and perfectly distinct class in every village throughout the Presidency, as it is a matter of the greatest importance to know the death-rate among these people.

The following table shows the number of deaths, arranged according to classes in each district of the Presidency, as well as the ratio of mortality, calculated on the population of each class, as enumerated at the census of 1872:—

Districts.	Mahomedans.		Hindoos.		Christians.		Other Classes.		Total.	
	Number of Deaths.	Ratio per 1,000 of Mahomedans, as enumerated in census of 1872.	Number of Deaths.	Ratio per 1,000 of Hindoos, as enumerated in census of 1872.	Number of Deaths.	Ratio per 1,000 of Christians as enumerated in census of 1872.	Number of Deaths.	Ratio per 1,000 of Other Classes, as enumerated in census of 1872.	Number of Deaths.	Ratio per 1,000 on total population of District.
Khandesh	2,005	25·27	23,778	25·07	4	7·74	98	201·23	25,885	25·16
Násik	1,313	40·84	22,733	32·79	19	17·77	401	51·16	24,466	35·59
Ahmednagar	1,632	38·46	28,968	39·69	83	88·20	208	174·08	30,891	39·94
Poona	1,247	31·50	29,328	34·01	87	22·53	157	96·61	30,819	33·96
Sholápur	2,581	50·95	31,998	47·97	6	18·81	469	...	35,054	48·81
Satara	1,571	44·94	50,261	49·02	24	40·00	177	...	52,033	49·04
Belgaum	5,633	78·91	64,120	74·37	271	53·48	220	*	70,244	74·83
Dharwar	11,050	96·85	70,598	89·24	169	111·04	2,040	...	83,857	83·87
Kaládgi	8,675	99·26	71,542	98·19	5	96·15	2,831	...	83,053	101·77
Kanara	1,581	72·67	19,299	52·98	543	...	138	...	21,561	54·12
Ratnágiri	1,769	23·65	19,279	20·49	68	20·65	173	...	21,289	20·89
Kolába	427	24·83	5,723	17·26	3	14·42	101	48·35	6,254	17·85
Bombay City	6,231	45·28	24,838	58·61	919	26·47	1,235	25·60	33,223	51·55
Tanna	896	23·07	21,761	28·40	842	22·74	112	19·74	23,611	27·86
Surat	1,362	26·60	13,634	25·17	10	29·94	319	24·81	15,325	25·24
Broach	1,746	25·29	5,900	21·29	3	34·89	102	24·45	7,751	22·12
Kaira	1,302	16·99	14,081	19·78	9	29·51	4	59·00	15,396	20·19
Panch Máháls	207	13·87	3,349	14·83	...	...	1	58·82	3,557	14·77
Ahmedabad	2,018	24·80	14,768	19·77	15	23·08	208	354·34	17,009	20·50
Kurrachee	5,232	15·05	1,646	22·70	30	11·35	57	75·60	6,965	16·44
Hyderabad...	6,146	11·01	2,600	25·34	18	46·03	46	0·75	8,810	12·20
Thar and Párkar	1,249	12·93	1,061	16·98	...	...	199	9·20	2,509	13·88
Shikárpur	5,195	8·26	2,201	15·02	2	8·40	19	22·49	7,417	9·55
Upper Sind Frontier ...	518	6·38	203	23·29	...	...	8	112·68	729	8·10
Total ...	71,586	25·12	5,43,669	41·59	3,130	29·50	9,323	55·00	6,27,708	38·79

* The recorded deaths in these districts exceed the population of "other classes" as per census of 1872.

Annual Form No. VI.—Deaths according to Registration Circles and Towns.

In the last annual report it was stated that the number of rural circles amounted to 223, but this number included the Native State of Peint, in the Násik Collectorate, which Government in the Political Department has recently ordered to be omitted from the Presidency circles. The Registration circles in the Presidency, therefore, now consist of 222 rural circles, 55 Town circles and 7 Cantonments, and statistical returns are also received regarding the civil population in Cantonments occupied by troops under the Bombay Command, which are not included in the Registration circles.

The aggregate population of the rural circles, according to the census of 1872, is 14,294,346, that of the Towns 1,842,615, that of the Cantonments in the

Presidency 44,780, and that of the Cantonments outside the Registration Districts 87,195.

The highest mean ratios of recorded deaths per 1,000 of population are usually found among the Town populations. In 1877 the rate in some of these, especially those in the Famine Districts, is exceptionably high. The mortality recorded to have taken place in the town of Kaládgi amounted to the very high rate of 270.73 per 1,000 of population. This is due to the fact that at Kaládgi there was situated one of the principal relief-houses in the District, where reduced and indigent persons often in stages of extreme destitution were collected, and the natural consequence has been that a very high death-rate amongst them occurred. The 3 towns in the Satara Collectorate report an aggregate ratio of 120 per 1,000. In 1877 it was found that the mortality in the rural circles in some of the collectorates exceeded that of the towns. For example, in the Khandesh Collectorate the rural and town ratios are 25·29 and 23·08 respectively. In the Satara, Dharwar, and Kanara Districts the death-rate for the rural circles are respectively 49·49, 87·06, and 55·79 against 37·84, 68·53, and 28·11 per 1,000 in towns.

These results are tabulated in the following statement :—

Districts.	Number of Registration Circles.				Population.				Ratio of deaths per 1,000 of Population.			
	Rural Circles.	Towns	Cantonments	Total.	Rural Circles.	Towns.	Cantonments.	Total.	Rural Circles.	Towns.	Cantonments.	Total.
Khandesh	22	4	..	26	985,308	43,334	..	1,028,642	25·29	23·08	..	25·16
Násik	11	2	2	15	642,322	39,897	5,134	687,353	34·21	55·54	43·48	35·59
Ahmednagar	11	2	1	14	727,136	42,819	3,983	773,938	39·38	50·11	24·60	39·94
Poona	8	2	1	11	778,051	100,734	28,450	907,235	33·59	31·55	32·69	33·96
Sholápur	7	3	..	10	629,796	88,238	..	718,034	43·72	89·74	..	48·81
Satara	12	3	..	15	1,014,046	46,956	..	1,061,002	49·49	37·84	..	49·04
Belgaum	7	3	1	11	882,273	51,147	5,330	938,750	72·95	120·76	63.60	74 83
Dharwar	14	4	..	18	892,282	95,755	..	988,037	87·06	68·53	..	84·87
Kaládgi	8	1	1	10	809,445	6,592	..	816,037	100·40	270·73	..	101·77
Kanara	11	2	..	13	374,211	24,195	..	398,406	55·79	28·11	..	54·12
Ratnágiri	8	2	..	10	993,526	25,610	..	1,019,136	20·70	29·27	..	20·89
Kolába	6	2	..	8	338,301	12,104	..	350,405	17·12	38·12	..	17·35
Bombay City .. .	..	1	..	1	....	644,405	..	644,405	..	51·55	..	51·55
Tanna	11	3	..	14	809,485	37,939	..	847,424	27·48	36·51	..	27·86
Surat	8	2	..	10	488,623	118,464	..	607,087	25·16	26·64	..	25·24
Broach	6	2	..	8	298,466	51,856	..	350,322	21·33	20·76	..	22·12
Kaira	7	4	..	11	719,305	63,428	..	782,733	19·41	22·06	..	20·19
Panch Máhál	5	2	..	7	218,630	22,113	..	240,743	14·53	17·40	..	14·77
Ahmedabad	7	4	1	12	660,795	166,959	1,883	829,637	15·55	29·37	61·60	20·50
Kurrachee	13	1	..	14	369,969	53,526	..	423,495	15·87	20·41	..	16·44
Hyderabad	13	1	..	14	686,675	35,272	..	721,947	10·55	44·34	..	12·20
Thar and Párkar ..	7	1	..	8	176,762	3,999	..	180,761	13·70	22·50	..	13·88
Shikárpur	17	3	..	20	714,159	62,068	..	776,227	8·77	16·31	..	9·55
Upper Sind Frontier ..	3	1	...	4	84,780	5,205	..	89,985	6·41	35·73	..	8·10
Total ..	222	55	7	284	14,294,346	1,842,615	44,780	16,181,741	31·60	81·54	38·35	38·79

The statistics of the civil population living in the Sudder bazars attached to stations, which are situated beyond the Registration Districts, will be learnt from the following return :—

Stations.	Civil population.	Area in statute acre.	Average population per square mile.	Number of deaths.							Ratio per 1,000 of population.							Ratio of births per 1,000.
				Cholera.	Small-pox.	Fevers.	Bowel Complaints.	Injuries.	All other causes.	Total.	Cholera.	Small-pox.	Fevers.	Bowel Complaints.	Injuries.	All other causes.	Total.	
Aden	19,289	11·69	1,650·04	..	13	306	236	8	378	941	..	0·67	15·86	12·23	0·42	19·60	48·78	266	13·79
Baroda	2,451	9·00	272·33	3	2	41	11	1	24	82	1·22	0·82	16·73	4·49	0·41	9·79	33·46	38	15·50
Bhuj	991	1·04	953·00	..	..	13	4	2	6	25	..	..	13·11	4·04	2·02	6·06	25·23	85	85·77
Deesa	9,335	5·00	1,867·00	..	..	77	40	10	123	250	..	..	8·25	4·28	1·07	13·18	26·78	175	18·75
Kolhápur ..	646	1·21	553·90	..	..	9	4	1	14	28	..	..	13·93	6·19	1·55	21·67	43·34	39	60·37
Mehidpur ..	155	2·50	62·00	..	..	1	..	..	..	1	..	..	6·45	..	..	..	6·45	..	..
Mhow	22,792	6·50	3,506·05	1	15	230	28	11	311	596	0·04	0·66	10·09	1·23	0·48	13·65	26·15	788	34·58
Neemuch ..	11,767	4·23	2,786·52	..	2	110	15	5	69	201	..	0·17	9·33	1·28	0·42	5·86	17·06	159	13·49
Nusseerabad ..	18,386	8·00	2,292·00	..	39	264	17	9	344	673	..	2·13	14·32	0·92	0·49	18·76	36·70	1,006	54·86
Rájkot	1,413	Unknown.		..	..	21	5	..	29	55	..	..	14·86	3·54	..	..	38·92	92	65·11
Total ..	87,195	49·17	1,773·34	4	71	1,072	360	47	1,298	2,852	0·05	0·81	12·29	4·13	0·54	14·89	32·71	2,648	30·37

Annual Form No. VII—Mortality from different causes.

The death-rates, according to causes, next claim attention. The forms ordered by the Government of India classify all deaths occurring among the civil population under one of the following heads:—Cholera, small-pox, fever, bowel complaints, injuries, and other causes.

In the following table is shown the number of deaths from specified and all causes, as contrasted with 1876:—

Year.	Cholera.	Small-pox.	Fevers.	Bowel Complaints.	Injuries.	Other Causes.	Total.
1876	32,117	11,817	2,20,833	33,683	5,928	63,882	3,68,260
1877	57,252	27,369	3,36,865	60,257	7,539	1,38,426	6,27,708
Increase per cent. ...	78·26	131·61	52·54	78·89	27·18	116·69	70·45

The next statement shows how these deaths were distributed in each district. The ravages committed by cholera in the Kanarese-speaking Collectorates were very heavy. These districts have not been free from cholera since it first appeared in 1875, and the loss of life it has caused has been very great. Full details of this epidemic will be found in the section devoted to the History of Chief Diseases. There was no cholera in Sind.

Small-pox also prevailed throughout the Presidency, especially in the Khandesh and Násik Collectorates, whilst the deaths recorded under the head of Fevers amounted in the whole Presidency to 28·79 per 1,000 of population, the highest ratio 50·55 being found in Kaládgi, where exactly half of the recorded mortality of the year is ascribed to this one cause. The Northern and Southern Division Collectorates suffered most severely, and the ratio in the city of Bombay amounted to the very high one of 19·85 per 1,000.

From bowel complaints, which principally consist of dysentery and diarrhœa, there was a very high mortality in Sholápur, Satara, Belgaum and Dharwar, where the death-rate amounted to 12·38 per 1,000. In Káladgi, Kanara and Bombay City also the mortality from this cause was very high. The deaths returned under the heading Injuries are also somewhat in excess of those of last year; while those under the heading "Other Causes" gave for the whole Presidency a ratio of 8·55 per 1,000 against 3·78 in 1876. The highest ratios per 1,000 of population under this heading are found in the Collectorates of Káladgi (33·44), Belgaum (31·26), and Dharwar (20·91) and in Bombay City (20·29). In it are included those cases where deaths could not either from want of sufficient evidence or from the ignorance of the reporters be ascribed to any of the other headings. Deaths induced by anœmia, the result of long continued privation, must largely contribute to this heading, and, although there is no record of the number of deaths from starvation, and there is no means whereby we can ever know their exact number, all such would be entered under it. My impression is that, comparatively speaking not many deaths occurred from actual want of daily food though there can be no doubt that such cases did occur, chiefly I believe among wanderers, who died in the jungles, yet I believe that the mortality under this heading is to be ascribed rather to the result of those organic changes which took place in the digestive system from long continued innutrition than from the absolute want of food in some shape or other. I have seen many cases where emaciated persons were positively unable to eat even the most nutritious food. They would try to do so, but turned away unable to swallow it.

Districts.	Cholera.		Small-pox.		Fever.		Bowel Complaints.		Injuries.		Other Causes.		Total.	
	Number of deaths.	Ratio per 1,000.	Number of deaths.	Ratio per 1,000.	Number of deaths.	Ratio per 1,000.	Number of deaths.	Ratio per 1,000.	Number of deaths.	Ratio per 1,000.	Number of deaths.	Ratio per 1,000.	Number of deaths.	Ratio per 1,000.
Khandesh	1,694	1·64	5,774	5·01	14,386	13·99	3,037	2·96	316	0·37	678	0·66	25,886	25·16
Násik	1,963	2·87	3,431	4·70	14,899	21·68	1,764	2·71	165	0·24	2,244	3·27	24,466	35·59
Ahmednagar	2,760	3·57	1,978	2·56	19,424	25·10	2,884	3·73	196	0·25	3,649	4·71	30,891	39·94
Poona	3,673	4·04	1,312	1·45	19,753	21·77	2,270	2·50	330	0·36	3,481	3·84	30,819	33·96
Sholápur	1,354	1·85	1,080	1·50	16,941	23·59	5,016	6·99	288	0·40	10,399	14·48	35,054	48·81
Satara	6,702	6·32	950	0·89	31,555	29·74	7,796	7·35	488	0·46	4,542	4·28	52,033	49·04
Belgaum	8,357	8·89	1,112	1·18	25,267	26·91	5,632	6·00	529	0·56	29,347	31·33	70,244	74·88
Dharwar	8,779	8·89	2,642	2·67	39,915	40·40	12,230	12·38	658	0·67	19,033	19·86	83,857	84·87
Kaládgi	7,124	8·73	801	0·98	41,248	50·55	6,102	7·48	488	0·60	27,290	33·44	83,053	101·77
Kanara	2,804	7·04	473	1·19	10,652	26·76	2,345	5·94	262	0·66	5,015	12·60	21,561	54·12
Ratnágiri	3,125	3·06	1,239	1·22	8,449	8·33	2,009	1·97	433	0·42	6,034	5·92	21,289	20·89
Kolába	1,124	3·21	333	0·95	3,281	9·36	312	0·89	134	0·38	1,070	3·05	6,254	17·85
Bombay City	2,510	3·89	953	1·47	12,788	19·34	3,545	5·50	351	0·54	13,076	20·29	32,223	51·65
Tanna	3,337	3·94	1,301	1·53	16,746	18·58	502	0·59	483	0·57	2,242	2·64	23,611	27·86
Surat	978	1·61	2,193	3·61	8,865	14·60	1,286	2·12	292	0·48	1,711	2·82	15,325	25·24
Broach	302	0·86	1,036	2·96	5,253	14·99	437	1·25	120	0·34	603	1·72	7,751	22·12
Kaira	205	0·26	125	0·16	11,912	15·22	1,810	2·31	352	0·45	992	1·27	15,396	20·19
Panch Máhals	176	0·73	41	0·17	3,037	12·61	121	0·50	137	0·57	45	0·19	3,557	14·77
Ahmedabad	285	0·34	144	0·17	11,755	14·18	771	0·93	357	0·43	3,697	4·45	17,009	20·50
Kurrachee	..	..	151	0·35	5,350	13·10	46	0·11	303	0·72	1,115	2·62	6,965	16·44
Hyderabad	..	..	286	0·40	7,128	9·87	75	0·10	450	0·62	871	1·21	8,810	12·20
Thar and Párkar ..	..	..	8	0·04	2,225	12·32	51	0·24	91	0·50	134	0·74	2,509	11·73
Shikárpur	..	..	..	..	6,394	8·24	203	0·26	276	0·36	544	0·70	7,417	9·55
Upper Sind Frontier ..	..	..	6	0·07	632	7·02	13	0·14	40	0·44	38	0·42	729	8·10
Total ..	57,253	3·53	27,369	1·69	3,36,865	20·79	60,257	3·72	7,539	0·47	1,38,426	8·56	6,27,708	38·79

Having thus considered the death returns as shown by districts, it becomes necessary to continue the examination a little more closely, and as the famine was most severely felt in the Collectorates of Kaládgi, Dharwar, Belgaum, Satara and Sholápur, the death returns for each of these collectorates, by talukas, will now be shown.

Kaládgi District.

The following table shews the percentages of deaths in each taluka of the Kaládgi District arranged according to sex, causes, classes, ages, and months :—

Kaládgi.

Talukas.	Sexes.		Causes.						Classes.				Ages.				Months.												Total.
	Males.	Females.	Cholera.	Small-pox.	Fever.	Bowel Complaints.	Injuries.	Other Causes.	Christians.	Mahomedans.	Hindus.	Other Classes.	Infants.	Children.	Adults.	Old People.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
Bágalkot	11·96	9·39	0·78	0·08	3·96	0·90	0·02	5·00	..	10·25	10·74	..	1·06	1·76	4·86	3·02	0·28	0·44	0·59	0·72	1·00	1·07	1·38	1·33	1·36	1·11	0·82	0·60	10·70
Bijápur	12·36	9·80	0·82	0·04	6·41	1·07	0·06	2·78	..	11·83	9·31	..	1·18	1·76	6·66	1·59	0·48	0·31	0·26	0·56	0·78	0·78	0·96	1·35	1·35	1·40	1·82	1·08	11·13
Bagewári	10·35	7·71	0·96	0·06	4·70	0·61	0·02	2·69	..	7·81	9·09	..	0·56	1·55	4·72	2·22	0·14	0·17	0·39	0·67	0·69	0·84	0·87	0·92	1·04	1·21	1·42	0·70	9·06
Hungund	11·85	9·16	0·93	0·15	4·89	0·26	0·07	4·22	..	10·57	10·42	..	0·79	2·21	4·74	2·77	0·19	0·23	0·51	0·50	1·00	0·93	1·15	1·55	1·48	1·17	1·09	0·70	10·52
Bádámi	10·44	8·66	0·93	0·07	4·76	0·79	0·06	2·96	..	8·70	8·05	..	0·77	2·06	4·83	1·91	0·40	0·54	0·44	0·50	0·70	0·60	1·03	1·18	1·36	0·95	0·82	1·03	9·57
Muddebihál	10·19	8·11	1·37	0·07	5·00	0·27	0·07	2·40	..	10·17	8·90	..	0·63	2·27	3·54	2·72	0·17	0·14	0·57	0·93	0·74	0·91	1·16	0·95	1·04	0·91	1·11	0·58	9·18
Indi	9·42	7·33	0·32	0·18	6·14	0·18	0·03	1·56	..	7·57	8·31	..	0·62	1·80	3·04	2·95	0·18	0·27	0·29	0·33	0·53	0·53	0·72	0·81	1·41	1·39	1·32	0·61	8·41
Sindgi	13·24	10·46	0·99	0·11	5·15	1·97	0·06	3·61	..	11·94	11·88	..	0·97	2·10	5·53	3·40	0·18	0·21	0·43	0·83	0·42	0·63	0·71	1·13	1·91	2·47	2·05	0·91	11·89
Kaládgi Town	28·85	24·98	1·53	0·32	0·42	..	0·16	24·80	..	34·57	10·37	..	1·80	7·22	14·30	3·69	0·24	0·14	0·45	0·92	2·76	2·67	3·69	5·93	5·59	2·94	1·21	0·64	27·03
	11·32	8·98	0·87	0·10	5·05	0·75	0·07	3·34	9·62	9·91	9·82	..	0·83	1·99	4·78	2·58	0·26	0·31	0·44	0·61	0·75	0·79	1·02	1·19	1·41	1·33	1·28	0·78	10·18

The highest mortality in the presidency took place in this collectorate; the general death-rate for the district amounting to 10·18 per cent. of the population as enumerated at the census of 1872.

Of the 9 circles of Registration in it, the highest death-rate took place in the Kaládgi Town Circle, where it amounted to 27 per cent. This as before noticed, is the result of there having been one of the largest relief-houses established at the town of Káladgi and consequently the deaths amongst the inmates added greatly to the death-rate of the town, the population being calculated as enumerated of the census of 1872. The highest death-rate in the rural circles (Talukas) is found to have occurred in Sindgi Taluka, which is one of the eastern provinces and is adjacent to the Nizam's territories. Cholera was prevalent in this taluka and contributed 0·99 per cent to the total death-rate, whilst 0·11 per cent. was due to small-pox and nearly half of the total deaths to fever; bowel complaints were very fatal and formed 1·97 per cent. of the total death-rate. Other causes including as has been explained, deaths from anæmia due to privation, contributed the high rate of 3·61 per cent. to the total death-rate. The mortality among infants and children was very high, whilst nearly half of the deaths took place among adults and the deaths among old people were higher in this taluka than in any other. No rain fell in this district until late in the season, and when it came it was so excessive that remittent fever carried off a large number of people. The rise in the death-rate during the months of August, September, October and November is most marked.

The other talukas which suffered most severely, were Bijápur, where there was a very large relief-house and where the death-rate amounted to 11·13 per cent of the population. Hungund, a frontier taluka, where it was 10·52 per cent, Bágalkot where the central relief-house was a very large one and where the death-rate was 10·70 per cent of population. In all the remaining talukas there was a high death-rate, the lowest being at Indi where it amounted to 8·41 per cent.

The difficulty of affording relief in the Kaládgi District was very great. In the eastern talukas it was almost impossible to procure milk for infants and children as there was no fodder procurable for milch cattle, while destitute persons flocked into the district from the Moglai and in the early months of the year owners of cattle emigrated in large numbers to the Mullard (the Kanarese Jungles), many of whom died from fever on the road, and those who returned were so reduced that very many of them succumbed. The district was cut off from the centres of food supply, and the price of grain was throughout the year exceedingly high as will be seen from the following table which shows the number of pounds of jewari (the staple food) which could be purchased for a rupee :—

Month.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Jewari per lb.	16	16	15	12	11	9	8	8	11	12	21	23

The principal measures taken for the relief of the famine striken people, were the opening of relief-houses at suitable spots and the making of roads. There was only one large Famine Relief tank at Bijápur; but the people did not like going to it; in fact the greatest difficulty was experienced in getting them to go on to relief works. They preferred in spite of every thing that could be said to remain in their own villages which are far apart and where inspection was consequently difficult.

Dharwar District

The following table shews similar information regarding each taluka in the Dharwar District, the death-rate for which amounted to 8·49 per cent of the population ;—

Dharwar Collectorate.

Talukas.	Sexes.		Causes.						Classes.				Ages.				Months.												Total.
	Males.	Females.	Cholera.	Small-pox.	Fevers.	Bowel complaints.	Injuries.	Other causes.	Christians.	Mahomedans.	Hindus.	Other classes.	Infants.	Children.	Adults.	Old people.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
Dharwar R.C.	8·68	6·38	0·76	0·21	3·24	0·63	0·08	2·63	..	8·99	7·25	..	0·91	1·97	2·77	1·88	0·48	0·36	0·50	0·55	0·61	0·65	0·59	0·91	0·78	0·85	0 62	0·60	7·55
Mugud Petha ,, ...	10·15	8·29	1·87	0·12	4·30	0·87	0·26	1·82	3·90	9·64	8·76	..	0·95	2·49	4·21	1·58	0·61	0·97	0·88	0·75	0·68	0·88	0·58	0·66	0·49	0·95	0·85	0·86	9·24
Hubli ,, ...	10·05	7·21	0·51	0·15	5·09	0·92	0·97	2·03	..	11·96	8·17	..	0·97	2·22	3·02	2·43	0·52	0·44	0·32	0·33	0·44	0·56	0·76	1·18	1·24	1·08	0·79	0·93	9·67
Nawalgund ,, ...	12·34	9·54	0·54	0·14	5·00	1·35	0·08	3·87	..	13·72	10·21	..	1·31	2·26	3·78	3·56	0·41	0·31	0·48	0·47	0·81	0·63	0·91	1·44	1·60	1·52	1·24	1·07	10·98
Nargund Petha ,, ...	13·38	10·43	0·52	0·05	5·77	1·28	0·07	4·27	..	14·41	10·54	..	1·15	2·79	4·36	3·68	0·51	0·47	0·63	0·54	0·72	0·82	1·37	1·71	1·49	1·35	1·31	0·97	11·96
Gagad ,, ...	14·88	10·98	0·98	0·29	6·44	1·66	0·08	3·50	..	21·05	11·79	..	1·47	3·32	4·97	3·01	0·42	0·56	0·74	0·59	0·61	0·93	1·55	1·94	1·65	1·68	1·27	0·98	12·95
Mundergi Peth ,, ...	4·84	7·31	0·69	0·28	4·86	1·79	0·06	0·28	..	6·64	8·09	..	0·48	1·95	3·31	2·44	0·31	0·68	0·42	0·56	0·53	0·84	1·09	1·14	1·12	0·67	0·26	0·27	7·96
Kalghatgi ,, ...	8·84	7·14	1·94	0·21	3·53	0·78	0·30	1·46	10·17	10·83	7·76	..	0·78	2·31	3·28	1·84	0·67	0·77	0·63	0·85	0·81	0·52	0·53	0·67	0·83	0·80	0·46	0·44	8·02
Bankápur ,, ...	6·55	5·17	0·97	0·16	3·09	0·79	0·10	0·77	..	6·63	5·62	..	0·68	1·36	2·49	1·33	0·51	0·43	0·43	0·46	0·37	0·41	0·47	0·54	0·66	0·61	0·45	0·53	5·88
Ron ,, ...	1·33	9·61	0·84	0·19	6·03	2·51	0·07	1·53	..	15·07	10·86	..	0·81	2·39	4·25	3·74	0·73	0·54	0·37	0·36	0·68	0·77	1·28	1·58	1·61	0·94	1·18	1·12	11·21
Karajgi ,, ...	9·01	7·39	0·77	0·21	4·82	0·98	0·04	1·61	..	10·25	8·15	..	0·61	2·08	4·12	1·59	0·32	0·43	0·69	0·67	0·47	0·51	0·82	10·34	1·26	0·93	0·51	0·50	8·43
Hángal ,, ...	6·11	4·78	0·98	0·18	3·34	0·65	0·32	0·37	..	8·08	5·06	..	0·32	1·53	2·61	0·99	0·56	0·68	0·66	0·58	0·29	0·27	0·44	0·41	0·42	0·38	0·39	0·37	5·47
Ránibennur ,, ...	9·65	8·44	0·47	0·49	3·09	2·69	0·09	2·08	..	9·56	8·71	..	1·01	2·51	3·21	2·16	0·24	0·42	0·62	0·35	0·52	0·78	0·81	1·52	1·36	0·82	0·59	0·66	8·91
Kod ,, ...	8·06	6·71	1·11	0·58	2·71	1·06	0·96	1·04	..	8·00	7·22	..	1·13	2·15	2·59	1·55	0·26	0·58	0·96	0·66	0·39	0·44	0·65	0·84	0·97	0·65	0·58	0·53	7·46
Dharwar T.C.	6·45	5·98	1·04	0·49	2·01	0·20	0·10	2·65	8·63	7·59	5·08	..	0·53	2·13	2·90	0·92	0·64	0·65	0·69	0·45	0·64	0·30	0·24	0·50	0·65	0·34	1·19	0·34	6·49
Hubli ,, ...	5·57	4·03	0·66	0·28	1·82	0·17	0·11	1·77	..	4·51	4·44	..	0·46	1·18	1·76	1·41	0·52	0·53	0·39	0·33	0·31	0·31	0·45	0·56	0·46	0·49	0·25	0·16	4·81
Gadag ,, ...	10·79	8·38	1·78	0·11	2·08	0·56	0·07	5·00	..	9·52	7·54	..	0·38	2·51	3·50	3·19	0·27	0·42	0·80	0·57	0·72	0·71	1·26	1·53	1·22	0·85	0·63	0·58	9·60
Rambednur ,, ...	7·05	5·91	0·68	1·16	2·25	0·39	0·19	1·82	..	4·71	6·46	..	0·45	1·99	2·79	1·27	0·32	0·98	0·96	0·27	0·28	0·34	0·19	0·68	1·10	0·41	0·53	0·39	6·49
	9·49	7·43	0·88	0·26	4·04	1·23	0·06	1·99	11·10	9·68	8·92	..	0·87	2·15	3·42	2·15	0·45	0·52	0·59	0·52	0·54	0·60	0·81	1·07	1·08	0·88	0·72	0·67	8·49

The highest death-rate among the rural circles in this collectorate took place in Gadag Taluka, where it amounted to the very high rate of 12·95 per cent of population. The male population suffered more severely than the female, the ratios for each sex being 14·88 for males against 10·98 for females. Cholera though not so fatal as in some of the other talukas, yet caused a large proportion of the deaths as 0·98 per cent of the total death-rate was due to it. Small-pox was also prevalent but the principal cause of deaths was fever as nearly half the death-rate is due to this cause, 6·44 per cent of the total being due to it, a larger percentage than is found in any of the other talukas. The Musulman population suffered much more severely in proportion to their numbers than the Hindus, whilst the deaths among infants and children were far higher than the mean. The deaths among adults were higher in this taluka than in any of the others. The months of July, August, September, October and November were extremely unhealthy, the marked increase in the rate of mortality in these months will at once attract attention.

A very high death-rate also took place in Nargund Petha, where it amounted to 11·96 per cent of population. In Ron where 11·21 per cent of the population died. In Nawalgund where the death-rate was 10·98 per cent. The lowest death-rate took place in Hangal Petha where it was 5·47 per cent. Among the town circles the highest death-rate took place at Gadag, where it amounted to 9·60 per cent, and the lowest at Hubli, where it was 4·81 per cent.

The price of staple grain in the Dharwar Collectorate will be seen from the following table :—

Months.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Bajree	20	22	21	19	18	14	10	11	12	15	28	33
Jowari	18	20	20	17	16	14	10	11	13	15	24	35

Belgaum District.

In the Belgaum Collectorate as will be seen by the following table the death-rate for the district was 7·48 per cent of the population as enumerated at the census of 1872 :—

Belgaum Collectorate.

Talukas.	Sexes.		Causes.						Classes.				Ages.				Months.												Total.
	Males.	Females.	Cholera.	Small-pox.	Fevers.	Bowel complaints.	Injuries.	Other causes.	Christians.	Mahomedans.	Hindus.	Other classes.	Infants.	Children.	Adults.	Old people.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
Belgaum R.C.	6·71	4·98	0·87	0·13	2·56	0·66	0·06	1·44	5·72	4·13	5·77	..	0·59	1·56	2·28	1·30	0·24	02·22	0·34	0·38	0·73	0·58	0·58	0·78	0·60	0·45	0·38	0·42	5·72
Sampgaon „	8·26	6·35	1·27	0·16	3·20	0·26	0·07	2·25	4·35	8·70	7·20	..	0·69	2·18	2·54	1·90	0·39	0·57	0·96	0·53	0·57	0·63	0·71	0·74	0·70	0·52	0·46	0·52	7·31
Bidi „	7·14	6·01	0·98	0·16	3·38	0·45	0·03	1·60	5·97	9·28	6·45	..	0·81	1·82	2·60	1·35	0·45	0·46	0·59	0·49	0·57	0·67	0·46	0·62	0·62	0·53	0·55	0·59	6·60
Chikori „	6·06	4·88	0·70	0·15	1·61	0·72	0·10	2·25	..	5·38	5·50	..	0·50	1·70	1·64	1·65	0·26	0·28	0·49	0·49	0·49	0·58	0·63	0·70	0·54	0·42	0·32	0·27	5·53
Parasgad „	11·69	8·99	0·75	0·09	4·68	0·79	0·14	3·99	..	11·60	10·11	..	0·63	2·95	4·13	2·64	0·54	0·42	0·58	0·54	0·63	0·89	1·22	1·59	1·33	1·00	0·78	0·80	10·44
Gokák „	9·89	7·35	1·08	0·03	2·40	0·29	0·05	4·80	11·11	7·74	8·70	..	0·51	2·42	3·15	2·45	0·56	0·44	0·66	0·55	0·94	0·81	1·06	1·24	1·00	0·67	0·45	0·46	8·65
Athni „	9·86	7·83	0·80	0·02	2·38	0·82	0·06	4.87	..	8·32	8·93	..	0·81	2·45	2·57	3·03	0·51	0·37	0·45	0·62	0·88	1·00	1·20	1·17	1·02	0·74	0·55	0·37	8·87
Belgaum T.C.	8·37	7·45	0·73	0·20	2·99	0·49	0·02	3·50	7·68	8·55	7·69	135·71	0·40	2·83	2·66	2·04	0·30	0·33	0·36	0·54	0·81	0·91	0·85	1·10	0·92	0·71	0·50	0·62	7·93
Gokák „	13·49	10·14	0·74	0·18	1·95	0·20	0·79	8·07	28·57	7·60	12·65	..	0·51	2·99	5·14	3·21	0·54	0·40	0·43	0·72	1·20	0·73	1·30	1·99	2·04	1·12	0·70	0·67	11·83
Athni „	21·09	15·20	1·50	0·14	2·22	0·31	0·15	12·18	50·00	14·22	1·67	..	1·06	3·09	5·32	6·20	0·56	0·70	0·73	1·27	2·40	1·83	1·78	2·57	2·08	1·09	0·82	0·65	16 50
Belgaum Cantonment	7·90	4·80	0·51	0·15	1·78	1·09	0·14	2·69	1·95	6·02	7·77	10·30	0·80	1·97	2·60	1·00	0·40	0·23	0·50	0·50	1·70	0·70	0·34	0·54	0·54	0·36	0·60	0·60	6·36
Total ..	8·38	6·55	0·89	0·12	2·69	0·60	0·05	3·13	5·35	7·89	7·44	268·30	0·62	2.16	2·62	2·07	0·39	0·38	0·57	0·52	0·66	0·73	0·83	0·98	0·83	0·61	0·47	0·46	7·48

Among the rural circles the highest death-rate took place in Parasgad Taluka, where it amounted to 10·44 per cent of population. Cholera though not as fatal as in other talukas, yet contributed 0·75 per cent to the total death-rate. Small-pox was not very prevalent but the deaths from fever (4·68 per cent of total death-rate) were very numerous. Bowel complaints contributed 0·79 per cent to the total death-rate and other causes, 3·99. The deaths among infants and especially among children were beyond the mean and more adults died in this taluka than in any other whilst there was a high death-rate among old people. The rise in the death-rate during the rainy months was most marked.

Among the town circles Athni and Gokak stand out as prominently unhealthy.

The death-rate in the former amounting to 16·50 per cent. and in latter to 11·83. There was a large relief-house at each place and there was a severe outbreak of cholera at Athni. The high percentage of deaths from other causes at this town will attract attention and is due to the numerous deaths among the inmates of the relief-house.

The price of the staple food for each month of the year will be seen in the ollowing table.

Months.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Bájri	21	21	21	20	17	15	11	10	·14	18	30	30
Jowári	21	20	20	18	16	14	10	10	15	19	31	32

Satara District.

In the Satara district the death-rate amounted to 4·90 per cent of the population. The death-rate in each Táluka will be seen from the following table:—

Satara Collectorate.

Talukas.	Sexes.		Causes.						Classes.				Ages.				Months.												Total.
	Males.	Females.	Cholera.	Small-pox.	Fevers.	Bowel Complaints.	Injuries.	Other Causes.	Christians.	Mahomedans.	Hindus.	Other Classes.	Infants.	Children.	Adults.	Old people.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
Satara R.G.	4·52	4·10	0·44	0·11	3·06	0·31	0·04	0 35	..	4·45	4·27	..	0·74	1·15	1·21	1·21	0·18	0·14	0·20	0·41	0·38	0·30	0·59	0·61	0·37	0·45	0·40	0·30	4·31
Jauli ,, ...	3·96	3·19	0·15	0·03	2·87	0·25	0·04	0·24	..	2·04	3·61	..	0·40	0·72	1·63	0·83	0·16	0 09	0·17	0·20	0·28	0·27	0·50	0·58	0·43	0·36	0·32	0·23	3·58
Wai ,, ...	4·62	4·07	0·55	0·13	3·26	0·15	0·05	0·20	3·16	4·07	4·35	..	0·66	1·31	1·04	1·32	0.21	0·19	0·31	0·46	0·55	0·45	0·50	0·35	0·38	0·34	0·31	0·35	4·34
Karad ,, ...	4·80	4·08	0·94	0·07	2·15	0·77	0·04	0·25	..	4·06	4·44	..	0·46	1·13	1·23	1·41	0·14	0·12	0·25	0·68	0·40	0·43	0·47	0·51	0·40	0·32	0·28	0·22	4·22
Walwa ,, ...	5·70	4·43	1·21	0·14	2·23	1·08	0·05	0·38	..	6·67	5 97	..	0·29	1·65	1·24	1·91	0·12	0·15	0·24	0·66	0·76	0·69	0·62	0·57	0·43	0·31	0·23	0·27	5·09
Tasgaon ,, ...	6·20	4·48	0·50	0·08	1·77	2·51	0·05	0·44	..	7·22	6·55	..	0.47	1·26	1·40	2·23	0·15	0·14	0·23	0·45	0·51	0·49	0·64	0·79	0·71	0·55	0·42	0·28	5·35
Khanapur ,, ...	6·09	4·73	0·39	0·07	3·70	0·79	0·02	0·45	..	4·70	5·38	..	0·40	1·33	1·31	2·39	0·17	0·18	0·24	0·36	0·28	0·43	0·64	0·84	0·79	0·59	0·57	0·33	5·42
Khatao ,, ...	5·79	4·84	0·41	0·09	3·89	0·21	0·06	0·66	..	5·24	5·30	..	0·35	1·33	1·42	2·22	0·16	0·16	0·29	0·37	0·34	0·45	0·54	0·70	0·66	0·64	0·58	0·43	5·32
Man ,, ...	7·42	6·22	0·36	0·06	5·97	0·22	0·05	0·95	..	6·59	7·61	..	0·64	1·82	2·05	3·09	0·19	0·29	0·43	0·40	0·51	0·68	0·74	0·92	0·93	1·16	0·84	0·51	7·61
Malcolm Peit ,, ...	2·18	2·47	0·27	0·00	1·67	0·05	0·11	0·20	0·49	2·67	2·27	2·86	0·22	0·32	1·02	0·67	0·17	0·25	0·17	0·22	0·20	0·20	0·25	0·17	0·05	0.30	0·07	0·22	2·30
Koregaon ,, ...	5·17	3·93	0·26	0·06	3·41	0·11	0·05	0·34	..	4·49	4·62	..	0·63	1·10	1·01	1·50	0·16	0·15	0·23	0·34	0·36	0·30	0·43	0·46	0·41	0·64	0·45	0·20	4·23
Patan ,, ...	6·13	5·04	0·80	0·05	3·36	0·90	0·02	0·47	..	3·83	5·63	..	0·39	1·58	1·65	1·93	0·16	0·13	0·26	0·34	0·41	0·79	0·89	0·79	0·62	0·45	0·47	0·28	5·60
Satara T.C.	4·71	3·88	0·22	0·11	1·77	1·19	0·04	0·98	1·49	4·68	4·29	3·77	0·71	1·09	1·20	1·31	0·27	0·20	0·24	0·35	0·40	0·29	0·46	0·58	0·45	0·40	0·35	0·33	4·31
Karad ,, ...	3·45	2·54	0·78	0·13	0·99	0·22	0·06	0·82	..	3·45	2·93	..	0·21	0·92	1·13	0·74	0·13	0·16	0·39	0·42	0·29	0·49	0·25	0·20	0·07	0·19	0·20	0·20	3.00
Wai ,, ...	4·49	3·61	1·31	0·44	1·57	0·28	0·03	0·41	..	4·28	4·02	..	0.46	1·16	1·08	1·34	0·09	0·22	0·25	0·61	1·22	0·47	0·23	0·10	0·19	0·20	0·24	0·24	4·04
Total ..	5·39	4·41	0·63	0·09	2·98	0·73	0·04	0·43	4·00	4·49	4·90	..	0·47	1·31	1·34	1·77	0·17	0·16	0·25	0·45	0·46	0·50	0·60	0·62	0·52	0·48	0·41	0·30	4·90

Among the rural circles the highest death-rate took place in the Mán Taluka where it amounted to 7·61, per cent of population. The principal cause of the high death-rate was fever, as 5·97 per cent of the death-rate was due to it. The death-rate among infants and children was very high as might be expected from the large number collected at the relief house attached to the Famine Relief Camp at Rajehwádi where large number of destitute persons were collected who had come from the neighbouring Talukas and Native States.

A high death-rate took place in Pátan, Wálwa, Tásgaon, Khanapur and Khatao Talukas, but in these it did not exceed 5·60 per cent of population.

The prices of staple food in the Satara District will be seen from the following table :—

Months.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
Bájri	20	21	21	20	16	14	11	9	14	18	30	30
Jowári	21	23	21	18	16	16	11	12	15	21	24	25

Sholápur District.

In the Sholápur District the recorded death-rate amounted to 4·88 per cent of the population as will be seen from the following table :—

Sholápur Collectorate.

Talukas.	Sexes.		Causes.						Classes.				Ages.				Months.												Total.
	Males.	Females.	Cholera.	Small pox.	Fevers.	Bowel Complaints.	Injuries.	Other Causes.	Christians.	Mahomedans.	Hindus.	Other classes.	Infants.	Children.	Adults.	Old people.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
Sholápur R.C.	3·79	2·83	0·14	0·07	2·01	0·29	0·03	0·79	..	3·55	3·21	..	0·13	0·74	1·59	0·87	0·08	0·09	0·16	0·15	0·18	0·26	0·26	0·40	0·50	0·46	0·54	0·24	3·33
Barsi „	4·76	3·51	0·26	0·32	2·44	0·34	0·04	0·75	..	3·40	4·00	..	0·41	1·03	1·51	1·20	0·20	0·30	0·27	0·27	0·27	0·31	0·28	0·55	0·52	0·50	0·49	0·20	4·15
Madha „	5·07	3·68	0·12	0·17	1·97	1·03	0·05	1·06	..	4·23	4·36	..	0·25	1·02	1·39	1·74	0·25	0·24	0·20	0·20	0·23	0·25	0·42	0·74	0·68	0·48	0·49	0·22	4·40
Karmala „	2·47	2·80	0·06	0·15	1·53	0·05	0·02	0·82	..	4·63	2·52	..	0·46	0·50	0·76	0·91	0·17	0·17	0·17	0·11	0·14	0·20	0·21	0·25	0·23	0·38	0·42	0·20	2·63
Pandharpur „	6·50	5·43	0·18	0·03	2·60	0·33	0·04	2·80	..	3·89	5·19	..	0·48	1·67	2·30	1·53	0·10	0·14	0·18	0·30	0·57	0·65	0·38	0·94	1·19	0·78	0·51	0·23	5·98
Sangola „	7·39	6·61	0·45	0·06	3·95	1·90	0·03	0·62	..	8·49	6·96	..	0·48	1·85	2·54	2·14	0·24	0·21	0·16	0·28	0·48	0·68	0·77	0·79	1·02	0·85	0·99	0·55	7·01
Malsiras „	6·22	5·12	0·26	0·02	3·95	0·64	0·05	0·76	..	5·17	5·67	..	0·42	1·47	2·01	1·78	0·21	0·22	0·19	0·21	0·37	0·42	0·48	0·71	0·87	0·79	0·72	0·49	5·68
Sholápur T.C.	9·03	6·68	0·05	0·25	1·89	0·52	0·07	5·12	2·51	7·26	8·13	..	0·96	1·64	2·57	2·74	0·15	0·09	0·11	0·14	0·12	0·05	0·87	1·31	2·29	1·16	1·01	0·61	7·91
Barsi „	9·44	7·86	0·30	0·31	1·50	0·16	0·11	6·28	..	9·96	8·20	..	0·50	2·18	4·00	2·00	0·55	0·40	0·42	0·41	0·33	0·45	0·93	0·94	1·59	1·67	0·69	0·31	8·68
Pandharpur „	12·16	8·54	0·47	0·18	2·35	6·65	0·04	0·63	..	5·97	10·48	..	0·65	3·26	4·05	2·37	0·37	0·45	0·43	0·83	1·26	0·93	1·36	1·73	1·15	0·67	0·83	0·30	10·33
Total ..	5·39	4·34	0·18	0·15	2·36	0·70	0·04	1·45	1·88	5·10	4·80	..	0·41	1·19	1·79	1·49	0·19	0·20	0·20	0·22	0·29	0·35	0·44	0·67	0·80	0·63	0·60	0·30	4·88

Among the rural circles the highest death-rate took place in the Sángola Taluka where it amounted to 7·01 per cent of population. More than half the mortality is ascribed to fever. There was a high death-rate among the children and old people, and the months of September, October and November were the most unhealthy. Among the town population the death-rates were higher than among that of the rural circles and at Pándharpur it amounted to 10·33 per cent of population.

The prices of staple food in this Collectorate will be seen from the next table :—

Months.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Bajri	23	21	22	20	18	16	14	11	15	27	26	26
Jowári	20	19	20	17	17	16	13	11	14	16	16	18

The question has often been asked what proportion of deaths in the 9 affected districts was due to causes directly connected with Famine. It is extremely difficult, if not impossible, to answer this question. In the first place the village registers only show the causes of deaths under the six headings ordered by the Government of India, *viz.*, cholera, small-pox, fevers, bowel complaints, injuries, and all other causes. The Registrars are persons often of no education, and who possess no medical knowledge so that the causes of deaths are always inaccurately reported, still however, it is fair to state that this ignorance on the part of the registrars was no greater in 1877 than in previous years, and that therefore the relative amount of error in the registration will, as regards causes, be in equal ratio to other years.

In offering the following estimate as to the proportion these deaths bore to the total mortality, I wish it be understood that I am fully aware, it is one on which too much reliance must not be placed.

In the first place I think the deaths from cholera may be safely eliminated. I made many enquiries during my tours both among district officers and others as to whether there were just grounds for believing that these deaths had been wrongly ascribed to cholera and whether deaths from Famine diarrhœa had not been included among them. Without going so far as to say that there were none such, yet I am convinced from the evidence I was able to collect, that the great majority of the deaths recorded under the head of cholera was rightly ascribed to this cause. The rapidity with which death followed the first attack left no doubt in my mind that it was so, especially when I remembered that cholera had been epidemic for the two previous years in these very collectorates, and that it had commenced to assume greater intensity in the latter part of 1876. The cholera in 1877 was in my opinion a revitilization, of the cholera epidemic which commenced at Násik in March 1875.

I also consider that the deaths from small-pox may be safely eliminated, the poison is a specific one, and has no connection with Famine.

The deaths from injuries may also be struck out. There only remain then the deaths recorded under the heading fevers, bowel complaints and other causes, and here the great difficulty arises to say what proportion of these deaths was due to the Famine.

It must be remembered that the year as shown by the mortality returns in other collectorates where there was no Famine was an extremely unhealthy one, and of course a certain proportion of these deaths is due to the general unhealthiness which prevailed every where in the Presidency, but what that proportion is, no one can say, though it may perhaps be possible to form an opinion as to the limit beyond which deaths due to famine did not exceed.

In the subjoined table I have deducted from the total number of deaths recorded to have taken place in each district under each of the headings, fever, bowel complaints and other causes, the mean of the previous 5 years.

The result will, indeed, under the heading of fever, include deaths which were due to the general unhealthiness of the season, and in causing which Famine had nothing to do, but I have left it as it stands, as at all events, it shews what the mortality from these causes was in excess of ordinary years.

District.	Population according to Census of 1872.	Fever after deducting mean of previous 5 years.	Bowel complaints after deducting mean of previous 5 years.	Other Causes after deducting mean of previous 5 years.	Total.	Ratio per cent of population.	Ratio per cent of deaths from all causes.	Remarks.
Khandesh	10,28,642	341	133	..	474	0·05	2·52	The deaths recorded under the heading "Othe Causes," for Khandesh and Násik were less in 1877 than the mean of theprevious 5 years.
Násik	6,87,353	4,264	206	..	4,470	0·65	3·56	
Ahmednagar	7,73,933	8,643	730	1,233	10,606	1·37	3·99	
Poona	9,07,235	7,624	522	108	8,254	0·91	3·40	
Satara	10,61,002	15,720	5,042	1,810	22,572	2·13	4·90	
Sholápur	7,13,034	9,488	3,595	7,326	20,409	2 84	4·88	
Belgaum	9,38,750	15,417	3,387	21,178	39,982	4·26	7·48	
Dharwar	9,88,037	27,511	7,364	13,852	48,727	4·93	8·49	
Kaládgi	8,16,037	33,018	5,033	22,953	61,004	7·47	10·18	
Total ..	79,19,028	1,22,026	26,012	68,460	2,16,498	2·73	5·51	

Taking the 9 districts together, the total deaths from all causes amounted to 5·51 per cent of population, and the deaths from Famine in these collectorates certainly did not exceed, but must have been somewhat, perhaps considerably, under, 2·73 per cent. Taking the districts separately, of course this mortality was much higher in some than in others. But in Kaládgi, the worst district, we can confidently state that it did not exceed 7·47 per cent of population. In Dharwar it was not above 4·93per cent. In Belgaum not beyond 4·26 per cent. I have stated that it was not greater in these districts than these figures show, but how much less it was, I cannot with any certainty say.

High as the above death-rates are, yet it must be remembered that famine, if extensive and prolonged, must inevitably be accompanied by a largely increased mortality; and considering the gigantic difficulties that had to be met in the Southern Maratha Country in affording aid to a people, difficult at all times to manage, a people trammelled with caste prejudices, and who, when the famine became protracted, became dispirited, hopeless, and apathetic, who lived in villages far remote from one another, who had no other resource for self-aid, but a blind fatalism, who rather than leave their villages and go to the works Government had opened for their relief, preferred to linger in them on the chance of obtaining food from private charity, and who even when taken to relief houses and fed, would leave and wander back to their old homes, it is a matter of surprise that the mortality, high as it was, was not even yet still higher.

It must have been infinitely greater if the Government had not organised a system of State aid, which was most thoroughly calculated to bring relief to all who would seek for it.

SECTION VI.

GENERAL HISTORY OF CHIEF DISEASES.

CHOLERA.

Total number of deaths from cholera in 1877.

31,344 males and 25,908 females or a total of 57,252 persons died from cholera in 1877 among the civil population of thisPresidency. This number exceeds the mean of the previous ten years by 40,448, and is the highest mortality yet recorded to have taken place from cholera. In 1869 52,380 deaths were registered.

The following table shows the proportion borne by cholera deaths to total deaths, and the ratio of deaths per 1,000 of population since 1867. In reading this it must be remembered that since 1872, the population given by the census held in that year, is taken whilst before that date the rate is calculated on an assumed population :—

Year.	Number of Deaths from Cholera.	Ratio per 1,000 of population.	Percentage to total Deaths.
1867	5,143	0·32	3·16
1868	6,447	0·50	3·48
1869	52,380	3·77	18·39
1870	2,666	0·20	1·21
1871	5,821	0·41	2·08
1872	15,642	1·03	4·40
1873	232	0·02	0·08
1874	37	0·01	0·01
1875	47,555	2·93	12·66
1876	32,117	1·98	8·72
Mean for 10 years	16,804	1·12	6·13
1877	57,252	3·54	9·13

Ratio of males and females.

In 1877 the ratio of recorded deaths to total population was 3·54 per mille, the ratio of male deaths to male population being 3·71 and of that for females 3·36.

In the Ratnágiri, Kolába, Surat and Broach Collectorates the death-rate among females exceeded that of males, but in all the other districts the heaviest

Diagram showing the prevalence of Cholera in the Bombay Presidency in each month, from February 1875 to December 1877 both inclusive.

Year	Total deaths from Cholera
1875	37,535
1876	32,417
1877	57,252

death-rate is found among males. Sind entirely escaped, but cholera was more or less prevalent in every district of the Northern Deccan and in Guzerat. It also prevailed to a considerable extent in the Konkan, particularly in Kanara, but the highest mortality during 1877 as in the previous year took place in the Southern Mahratta Country.

The districts which suffered most severely are placed in order of prevalence in the following table :—

Districts.	Ratio per 1,000 of population.		
	Male.	Female.	Total.
Dharwar	9·79	7·93	8·89
Belgaum	9·67	8·10	8·89
Kaládgi	9·52	7·90	8·73
Kanara	7·36	6·70	7·04
Satara	6·83	5·97	6·04
Poona	4·22	3·84	4·04
Tanna	3·99	3·87	3·94
Bombay City	3·97	3·36	3·89
Ahmednagar	3·79	3·29	3·55
Kolába	3·11	3·25	3·21
Nasik	3·09	2·56	2·87
Ratnágiri	2·86	3·11	3·06
Sholápur	2·03	1·68	1·85
Khandesh	1·67	1·58	1·64
Surat	1·51	1·71	1·61
Broach	0·85	0·87	0·86
Panch Máhals	0·79	0·66	0·73
Ahmedabad...	0·41	0·27	0·34
Kaira	0·27	0·25	0·26
Kurrachee	.....	.....	.....
Hyderabad	.....	.....	.....
Thar and Párkar	.....	.....	.....
Shikárpur	.....	.....	.....
Upper Sind Frontier	.....	.....	.....
Presidency ...	3·71	3·36	3·54

As was noticed in the last annual report, cholera has been in movement in this Presidency, since it broke out in March 1875 at Násik, and although it somewhat subsided on the setting in of the cold weather towards the end of that year, it again became active in the hot and rainy months of 1876, and although hopes were once more entertained that it was dying out on the approach of the cold season, the disease at the close of the year was rapidly becoming more fatal. In the year under report cholera increased in severity month by month until the end of June, when the disease began to decline and it continued to do so until the end of the year, although during December a considerable increase was noticed in the Belgaum and Tanna Collectorates.

The diagram on the opposite page shows the progress of the epidemic, since its commencement in 1875.

The history of this epidemic until the close of 1876 was traced in the last annual report, but it may be as well to recall to recollection that in December of that year cholera was confined to the following districts of the Presidency: Ahmednagar, Poona, Sholápur, Satára, Belgaum, Dhárwar, Kaládgi, Kanara, Ratnágiri, Tanna and Surat, but more especially to the Belgaum and Dharwar Collectorates.

Cholera in Towns.

The population of the Town Circles suffered as usual more than that of the rural districts. At Panwell, a large town in the Tanna Collectorate, with a population of 10,836 persons, the death-rate was the very high one of 21·23 per mille which, it may be men-

tioned is higher than the highest ratio in 1876. Bulsar follows with a rate of 18·38 per 1,000, and Gadag Betigiri out of a population of 19,035 lost 17·86 per 1,000 of its inhabitants from this disease. In Athni, in the Belgaum Collectorate, the death-rate was 14·84 per 1,000; at Mahad, a small town in the Kolába Collectorate, with a population of only 6,631 persons, the rate was as high as 13·72 per mille. In Wai, in the Satara Collectorate, it was 13·11 per 1,000; in Tanna 12·03, in Ratnágiri 11·59, and in Dharwar Town 10·43. The following table shews the towns in order of prevalence, where the mortality exceeded 1 per 1,000 of population —:

District.	Name of Town.	Cholera.		
		Population.	Number of Deaths.	Ratio per 1,000 of population.
Tanna	Panwell	10,836	230	21·23
Surat	Bulsar	11,315	208	18·38
Dharwar	Gadag Betigeri	19,035	340	17·86
Belgaum	Athni	11,588	172	14·84
Kolába	Máhád	6,631	91	13·72
Satara	Wái	11,062	145	13·11
Tanna	Tanna	14,299	172	12·03
Ratnágiri	Ratnágiri	10,614	123	11·59
Dharwar	Dharwar	27,136	283	10·43
Kanara	Coompta	10,932	107	9·80
Ahmednagar	Sangamner	9,978	87	8·72
Satara	Kurar	11,410	90	7·88
Tanna	Kalyan	12,804	100	7·81
Belgaum	Gokak	12,612	63	7·45
Do.	Belgaum	26,947	197	7·31
Násik	Násik	22,436	158	7·04
Dharwar	Ranibennur	11,623	79	6·80
Do.	Hubli	37,961	241	6·35
Khandesh	Dhulia	12,489	74	5·92
Ahmednagar	Ahmednagar	32,841	185	5·63
Panch Máhals	Godhra	10,641	58	5·45
Kanara	Karwar	13,263	69	5·20
Sholápur	Pandharpur	16,275	76	4·67
Poona	Poona City	90,436	409	4·52
Bombay	Bombay City	644,405	2,510	3·92
Násik	Yeola	17,461	66	3·87
Broach	Broach	36,932	120	3·25
Sholápur	Barsi	18,560	55	3·00
Poona	Junnar	10,298	24	2·33
Satara	Satara	24,484	54	2·21
Ratnágiri	Vingorla	14,996	29	1·93
Khandesh	Nusseerábad	9,941	23	1·71
Kolába	Alibâg	5,473	8	1·46
Surat	Surat	107,149	144	1·35
Panch Máhals	Dohad	11,472	13	1·13

In Cantonments. The following cantonments were also affected by cholera during the year :—

District.	Name of Cantonment.	Population.	Number of Deaths.	Ratio per 1,000.
Belgaum	Belgaum... ...	5,330	27	5·07
Ahmedábad	Ahmedabad ...	1,883	8	4·25
Násik	Málegaon ...	4,240	14	3·30
Poona	Poona and Kirkee	28,450	56	1·97

By months.

The highest number of deaths was recorded in June, when 8,320 deaths were registered and next to it in May, when 8,299 deaths were reported. The lowest mortality took place in December, when 797 deaths from this disease were recorded. In 1876 the highest and lowest numbers of deaths were returned respectively in May and November.

The actual number of deaths registered in each month of the year together with the ratios per 1,000 of population were as follows :—

Months.	Cholera.												
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Number of deaths ...	3,734	4,488	6,887	8,114	8,299	8,320	7,673	5,143	1,874	1,110	813	797	57,252
Ratio of deaths per 1,000 of population...	0·24	0·28	0·43	0·50	0·51	0·51	0·47	0·32	0·11	0·07	0·05	0·05	3·54

Distribution by months.

The following table shows the distribution of the disease by months in each of the affected districts.

	Number.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	Presidency.	Ahmednagar.	Poona.	Sholápur.	Satara.	Belgaum.	Dharwar.	Kaládgi.	Kanara	Bombay City.	Ratnágiri.	Kolába	Surat.	Panch	Násik.	Tanna.	Khandesh.	Broach.	Kaira.	Ahmedabad.
January ..	3,734	2	213	174	20	1,098	1,542	542	142	1	..	..	..	..	..	..	..	..	..	..
February ..	4,488	6	107	188	52	1,076	1,941	797	152	61	90	18	..	..	..	..	..	..	..	..
March ..	6,887	53	198	22	412	2,223	2,112	1,356	324	111	45	29	1	1	..	..	..	..	..	..
April ..	8,114	166	379	66	1,879	1,185	1,648	1,986	426	185	56	32	1	..	4	101	..	..	..	..
May	8,299	353	721	287	1,545	1,403	928	1,529	205	337	64	77	9	..	111	730	..	..	..	..
June	8,320	640	611	383	1,616	844	431	549	219	704	803	544	100	4	192	680	..	..	..	..
July	7,673	992	899	90	1,859	218	123	126	363	495	1,297	204	168	..	548	726	477	88	..	..
August ..	5,143	247	439	48	138	57	5	158	405	337	462	165	327	..	620	673	986	76	..	..
September ..	1,874	102	34	32	29	5	36	78	229	162	197	31	142	..	351	159	221	66	..	..
October ..	1,110	166	29	53	135	6	9	3	177	42	67	..	140	..	76	122	4	41	37	4
November ..	813	9	7	2	15	13	4	..	111	21	31	..	59	117	39	46	6	30	108	175
December ..	797	4	36	9	2	230	..	..	51	54	13	24	31	54	22	100	..	1	60	106
Total ..	57,252	2,760	3,673	1,354	6,702	8,357	8,779	7,124	2,804	2,510	3,125	1,124	978	176	1,963	3,337	1,694	302	205	285

January.

Cholera entirely disappeared during the month of January from Ratnágiri, Tanna and Surat, and a considerable subsidence, as compared with December 1876, is observed in Ahmednagar and Satara, but it again appeared in Bombay City during January and was rapidly becoming more fatal in the remaining districts. In Poona 213 deaths were registered against 21 in the previous month ; in Sholápur, Kaládgi, and Kanara the mortality rose from 94, 105 and 53 to 174, 542 and 142 respectively, and in Belgaum and Dharwar as many as 1,098 and 1,542 deaths were recorded against 943 and 791 deaths in December. The total mortality registered in the Presidency during the month was 3,734.

February.

In February a marked increase took place in all the affected districts except Poona where 107 deaths against 213 of the preceding month were recorded, but a considerable increase is observed in Dharwar and Bombay City, where the mortality rose from 1,542 and 1 to 1,941 and 61 respectively; cholera also broke out, for the first time during the year in the Ratnágiri and Kolába Collectorates, where it caused 90 and 18 deaths respectively. 4,488 deaths were registered in the Presidency during February.

March.

In March, cholera increased in severity and the total recorded deaths in the Presidency rose to 6,887 ; a satisfactory decrease took place in Sholápur and Ratnágiri, but in the Southern Deccan and in Kanara it increased in violence. At Satara the mortality

rose from 52 to 412, in Belgaum from 1,076 to 2,223, in Dharwar from 1,941 to 2,112, in Kaladgi from 797 to 1,356 and in Kanara from 152 to 324. The disease also appeared for the first time in Surat and the Panch Máháls, as one death was reported from each of these districts. During March the disease attained its maximum in Belgaum and Dharwar.

April. In April cholera again was on the increase, and 8,114 deaths were reported in the Presidency. In Belgaum and Dharwar a satisfactory decrease is observed, in Belgaum from 2,223 to 1,185 deaths, and in Dharwar from 2,112 to 1,648, but in Satara the disease was extremely fatal as 1,879 deaths were reported against 412 in the preceding month. In Kaládgi also 1,986 deaths were registered against 1,356 in March. This was the highest number recorded during the year in each of these Collectorates. No fresh cases were reported from the Panch Máháls, but 4 deaths occurred in the Násik, and 101 in the Tanna Collectorates.

May. In May the total mortality from cholera rose to 8,299. A marked increase over the preceding month is observed in the Ahmednagar, Poona and Kolába Districts, whilst the deaths in Sholápur increased from 66 to 287, and in Násik and Tanna from 4 and 101 to 111 and 730 respectively. In Belgaum also 1,403 deaths against 1,185 in April were reported. A considerable fall however took place in the Satara, Dharwar, and Kanara Collectorates.

June. The mortality for cholera attained its maximum in June as 8,320 deaths were recorded in the Presidency. It will be observed that this number only exceeded that of May by 21. The disease made considerable progress in the Districts of Násik, Ahmednagar, Sholápur and Satara as well as in the Konkan districts. In Tanna and Poona a decrease took place, but it was most marked in the Southern Maratha Country where the aggregate mortality in Belgaum, Dharwar and Kaládgi fell from 3,860 in May to 1,824; 4 deaths were reported in the Panch Máháls. During June the maximum mortality was reported for Sholápur, Bombay City and Kolába.

July. During July the total number of deaths were less by 647 than in the previous month. The decrease took place in Satara, Sholápur, Belgaum, Dharwar and Kaládgi, and in Bombay and Kolába. It prevailed however extensively in the Násik, Ahmednagar and Poona Collectorates, and it appeared for the first time in Khandesh, where 477 deaths were registered, and in Broach where 88 deaths were recorded. In Kanara, Ratnágiri and Surat, a considerable increase took place, and the highest number of deaths for the year was recorded in Ahmednagar, Poona and Ratnágiri.

August. During August a further decrease of 2,530 took place. In Kaládgi the mortality rose to 158, in Kanara to 405, in Surat to 327, in Khandesh to 986, or more than double the deaths in the preceding month and in Násik to 620.

September. In September the mortality fell from 5,143 to 1,874. In Dharwar 36 deaths took place, but a considerable fall is observed in the other districts.

October. In October a still further fall took place as only 1,110 deaths were recorded in the Presidency, but a marked increase is observed in Ahmednagar, Sholápur and Satara. The disease disappeared from Kolába during this month, but broke out for the first time during the year in Kaira and Ahmedabad, where 37 and 4 deaths were respectively recorded. In Kanara 177 deaths were reported, whilst in Belgaum, Dharwar and Kaládgi only 5, 9 and 3 deaths respectively were reported.

November. The total deaths recorded in November in the Presidency amounted to 813 or 297 less than in October. The disease was still prevalent in the Konkan and Guzerat Districts, and reappeared in the Panch Máháls, where it caused 117 deaths. In the Kaira and

Ahmedabad Districts the number of deaths rose from 37 and 4 in the preceding month to 108 and 175 respectively. In Surat a considerable fall took place from 140 to 59. In Broach 30 deaths were returned against 41 in October. In Kanara the deaths were 66 less than in the preceding month, and the disease was rapidly dieing out in Ratnágiri. Cholera disappeared from Kaládgi, and in the remaining Districts there were but few deaths from it.

December. During December, cholera reached its minimum for the year, only 797 deaths having been reported in the Presidency. It however was still present in 6 out of 9 Districts in the Deccan, and in the Konkan and in Guzerat, though it was dying out in the latter. It altogether disappeared from the Districts of Khandesh and Dharwar, but in Poona the recorded deaths rose from 7 to 36. A large increase also took place in Belgaum as 230 deaths were registered during the month against 13 in November. In Tanna 100 deaths were recorded against 46 in November, and the disease was slightly on the increase in Sholápur and Bombay City.

By Districts, Towns, Villages. The progress of the disease by Districts and in towns and villages next claims attention.

Khandesh. In the Khandesh Collectorate it broke out at Mehunbára in Chálisgaon R.C. on the 4th July, and appeared during that month in 89 other villages, 90 in all. In August it disappeared from 42 villages, but broke out in 114 others, 162 in all. In September it disappeared from 147 villages, but attacked 32 new ones, and re-appeared in 1, 43 in all. In October it disappeared from all these villages, but appeared for the first time at Nimbhori in the Taloda R.C., and prevailed there during the month of November. In December cholera disappeared from the District.

Násik. In the Násik Collectorate the disease broke out in the village of Mukhed in the Yeola Taluka on the 19th of April, and continued during May when it appeared in 8 other villages, 9 villages being affected at the end of the month. In June it disappeared from 6 of these, but attacked for the first time 25 others, 28 being affected. In July it disappeared from 17 villages, and broke out in 64 others, 75 in all. In August it disappeared from 58 villages, attacked 53 and re-appeared in one (Nugarsal), 71 in all. In September it disappeared from 52 villages, appeared in 40 others, and re-appeared in 4, 63 in all. In October it disappeared from 47, but broke out in 18, and Bhingorla was again attacked, 35 in all. In November it disappeared from 21 villages, and no fresh village was attacked, so that 14 villages were affected at the end of the month. In December all these villages were free, but the disease appeared for the first time in 4 fresh ones, and it again attacked Yeola Town.

Ahmednagar. In the Ahmednagar Collectorate cholera was reported for the first time in 1877 from the village of Kásti on the 29th January. This was the only village in the Zillah that suffered from cholera during that month. In February the disease appeared in another village Koolsumb, in Jamkhed Taluka, 2 in all. In March it disappeared from Kasti, but continuing in Koolsumb, attacked 9 other villages, 10 in all. In April it disappeared from 5 villages, but broke out in 16 others, 21 in all. In May it disappeared from 14 villages, but attacked 52 others including the Towns of Ahmednagar and Sangamner, and re-appeared at Káshti, 60 in all. In June it disappeared from 32 villages, but attacked 80 new ones and reappeared in 2 Koolsumb and Pravara Sangam, 110 in all. In July it disappeared from 64 villages, broke out in 78 fresh ones and reappeared in 5 (Newasa Khoord, Belpimpalgaum, Panoli, Walkodi and Belápur Khurd) ,129 in all. In August it disappeared from 102 villages ,but attacked 20 new ones, and reappeared in 1 (Kopergaon), 48 in all. In September it disappeared from 32 villages, but although no fresh ones were attacked, it reappeared in 4 villages (Rahuri, Akola, Pimplagaon Dipe, and Nimow), 20 in all. In October it disappeared from 8 villages, but appeared for the first time in 18 other villages, and reappeared in 5 (Panwadi, Pakhari Haoli, Jaoli Buleswur, Sakirwadi and Bote), 35 in all. In

November it disappeared from all these villages, except Nimow, where it continued till the end of December. During the 2 last months of the year no fresh cases were reported to have taken place in any other town or village of the Collectorate.

Poona.

In the Poona District the epidemic of cholera continued from the previous year. The first case reported during 1877, however, was that which took place at Yewat in Taluka Bhimthadi on the 5th January, and in the course of the month cholera was reported from 18 other villages, 19 in all. In February it disappeared from 11 villages, but attacked an equal number of fresh ones, 19 in all. In March it disappeared from 9 villages but broke out in 24 others and in Poona city, 35 in all. In April it disappeared from 21 villages, broke out in 35, and reappeared in 1 (Kedgaon), 50 in all. In May it disappeared from 35 villages, but attacked 69 new ones, and reappeared in 3, (Warand, Khole, Malad), 87 in all. In June it disappeared from 61 villages, broke out in 48, and reappeared in 6;—80 in all. In July it disappeared from 59 villages, but attacked 53 fresh ones and reappeared in 8, 82 in all. In August it disappeared from 59 villages, appeared in 29, and reappeared in 5, 57 in all. In September it disappeared in 47 villages, but broke out in 1 fresh one, and reappeared in 3, 14 in all. In October it left 7 of these, attacked 3 others, and reappeared in 3 more, 13 in all. In November it disappeared from 7 villages and was present in only 6. In December it disappeared from three, and did not attack any fresh one, 3 in all.

Sholápur.

In the Sholápur Collectorate cholera continued from last year. The first case during 1877 was reported from the village of Jawoodwadi in Sangola R.C., on the 1st of January, and during the month reports of deaths were received from 18 other villages, 19 in all. In February it disappeared from 12 villages, but attacked 11 fresh ones, 18 in all. In March it disappeared from 16 villages, broke out in 2 new ones, and reappeared in 1 (Yewti), 5 in all. In April it disappeared from 4 villages, but attacked 8 others. It also reappeared in Sholápur Town, thus leaving 10 towns and villages affected at the end of the month. In May it disappeared from 7 villages, broke out in 26 others, and reappeared in 3 (Nandemi, Kalphal, and Sangola Town), 32 in all. In June it disappeared from 12 villages, but attacked 40 fresh ones, and reappeared in 5 (Sholápur, Madha and Barsi Towns Ooplaya and Bhalawnee), 65 in all. In July it disappeared from 53 villages, appeared in 11, and reappeared in 1, Jewori, 24 in all. In August it disappeared from 18 villages, but attacked 4 fresh ones, and made its reappearance in 2 (Khardu and Sholápur Town), 12 in all. In September it disappeared from 3 villages, appeared in 5, and again attacked 3 (Saundra, Akluz, and Sangola Town), 17 in all. In October it disappeared from 7 villages and broke out in only 1 fresh one but its reappearance was reported from 2 villages (Radde and Dahivdi), 13 in all. In November it disappeared from 5 villages, and reappeared in 1 (Sangola T.C.), 9 in all. In December it disappeared from 6, thus leaving only 3 villages affected at the end of the year.

Satara.

In the Satara Collectorate cholera continued from the previous year. The first case during 1877 took place in the town of Tásgaon on the 18th January, and during the month the disease spread to other 3 villages, 4 in all. In February it disappeared from 3 villages, but attacked 10 others, 11 in all. In March it disappeared from 4 villages but broke out in 75 fresh ones, including Karád T. C., 82 in all. In April it disappeared from 23 villages, but attacked 120 fresh villages and the town of Wái and Satara, thus leaving at the end of the month 181 places affected. In May it disappeared from 52 villages and attacked 43 new ones, 172 in all. In June it disappeared from 75 villages, appeared in 95, including Malcolm Peit, and reappeared in 15, 207 in all. In July it disappeared from 52 villages and from Wái town, but appeared for the first time in 20, 174 in all. In August it disappeared from 142 villages and only 5 fresh ones were attacked, 37 in all. In September it disappeared from 30 villages and remained in 7 only. In October it disappeared from 4 of these, but re-appeared in 19 villages, including Satara T. C., 22 in all. In November it disappeared from 16, but re-appeared in 3 villages, 9 in all. In December it left 8 of these, re-appeared in one village, 2 in all.

Belgaum.

In the Belgaum Collectorate cholera continued from last year. The year 1877 commenced with the disease being present in 109 villages in January. In February it disappeared from 25 villages, but attacked 51 fresh ones, 135 in all. In March it disappeared from 37 villages, but broke out in 84 others, 182 in all. In April it disappeared from 29 villages, but attacked 10 fresh ones, 163 in all. In May it disappeared from 47 villages, broke out in 43 and re-appeared in 15,174 in all. In June it disappeared from 89 villages, including the towns of Gokak and Athni and the cantonment of Belgaum, but it appeared for the first time in 38 villages, 123 in all. In July it disappeared from 101 villages and from the town of Belgaum, but attacked 16 fresh ones, 37 in all. In August it disappeared from 30 villages, appeared in 2 and re-appeared in 1 (Belgaum Cantonment) 10 in all. In September it disappeared from 8 villages and was present in only 2 villages. In October it disappeared from one of these, but re-appeared in 2, 3 in all. In November it disappeared from 2, thus leaving only one village affected. In December, however, cholera again appeared in the district and during the month as many as 22 villages were affected by this disease.

Dharwar.

In the Dharwar Collectorate the epidemic continued from the previous year and in January 1877 it was present in as many as 181 villages. In February it disappeared from 19 villages, but attacked 77 others, 239 in all. In March it disappeared from 42 villages, but broke out in 26 new ones, 223 in all. In April it disappeared from 77 villages, but appeared in 29 fresh ones, 175 in all. In May it disappeared from 45 villages and attacked 6 others, 136 in all. In June it disappeared from 78, appeared for the first time during the year in 13 villages and re-appeared in 1 (Ranibenur Town) 72 in all. In July it disappeared from 46 villages and among others from the town of Gadag-Betigeri, thus remaining in 26 villages at the end of the month. In August it disappeared from the town of Hubli and from 22 villages, and at the close of the month only 3 villages were affected. In September it disappeared from 2 of these, but it re-appeared in 2 villages, 3 in all. In October it left these but it again appeared in 1, where it continued to be present during the succeeding month, November, and this was the only village affected. In December there was a complete disappearance of the disease from the district.

Kaládgi.

In the Kaladgi Collectorate cholera continued from the previous year, and at the commencement of 1877, cholera was present in 50 villages. In February it disappeared from 5 villages, but attacked 54 others, 99 in all. In March it disappeared from 27 villages, but broke out in 32 fresh ones, 104 in all. In April it disappeared from 16 villages, attacked 75, and re-appeared in 9, 172 in all. In May it disappeared from 33; but broke out in 10 others, 149 in all. In June it disappeared from 82 villages, and appeared for the first time in 9 others, 76 in all. In July it disappeared from 60 villages, and from Kaládgi T. C., appeared in 1 and re-appeared in 10 villages, 26 in all. In August it disappeared from 8 villages, but again attacked 7 others, 25 in all. In September it disappeared from 10 villages, but re-appeared in the town of Kaládgi, 16 in all. In October it left all these except 1, but it died out during the month of November, and in December the district was entirely free from the disease.

Kanara.

In the Kanara Collectorate cholera continued from the previous year. The first case during 1877 occurred at the town of Haliyál on the 3rd January, and during the course of the month cholera was reported from 18 other villages, 19 in all. In February it disappeared from 7 villages, but appeared in 30 fresh ones, 42 in all. In March it left 21 villages, but attacked 60 others, and re-appeared in 2 (Bad and Jatwani), 83 in all. In April it disappeared from 66 villages, broke out in 29, and re-appeared in 4 (Amdalli, Mangalm, Tindapur, and Murgundy), 50 in all. In May it disappeared from 41 villages appeared for the first time during the year in 19 and re-appeared in 2, Havgi and Kondh, 30 in all. In June it disappeared from 23 villages, but broke out in 17 others, and re-appeared in 4 (Nyasurgi, Chighatti, Belamain and Kodli), 28 in all. In July it disappeared from 16 villages appeared in 35 fresh ones, and re-appeared in 4 (Kadwad, Hotigah, Balgar and Shirur) 51 in all. In August it disappeared from 25, but attacked 33 new ones, and re-

appeared in 7, 66 in all. In September the epidemic disappeared from 41 villages, but attacked 11 fresh ones, and appeared for the second time during the year in 7, 43 in all. In October it disappeared from 12 villages, but broke out in 8 new ones, 39 in all. In November it disappeared from 27 villages, appeared in 7 fresh ones, and re-appeared in 6, 25 in all. In December it left 18 of these, thus leaving 7 villages affected at the end of the year.

Ratnágiri.

From the Ratnágiri Collectorate no village details have been received. The first case during the year was reported on the 3rd of February from the Rájápur Taluka, and during that month the disease disappeared in talukas, Málwan, Dápoli and Ratnágiri, where the first cases during the year occurred on the 23rd, 18th and 10th idem respectively. The maximum mortality, 1,297, was registered in July and next to it in June, when 803 deaths were recorded. The disease continued to prevail till the end of the year.

Kolába.

In the Kolába Collectorate it broke out at the town of Alibág on the 12th February, and during the month, it spread to a village in the neighbourhood, 2 in all. In March it disappeared from both of these places, but attacked 5 new villages. In April it left all these, but appeared for the first time at Saral, and during the next month (May) spread to 7 other villages, including the towns of Penn and Máhád, 8 in all. In June it disappeared from 5 villages, but broke out in 11 others, and re-appeared at Alibág, 15 in all. In July it disappeared from 10 villages, and from the towns of Alibág and Máhád, but it broke out in 19 fresh villages, 22 in all. In August it disappeared from 16 villages, attacked 7, and re-appeared in 1 (Máhád) 14 in all. In September it left 11 of these villages, and was only present in 3. During October and November cholera was absent from the district, but in December only 1 (the town of Mahad) was affected.

City of Bombay.

In the City of Bombay the first case of cholera occurred on the 9th January. The disease increased in virulence month by month until the maximum was reached in June, when 704 deaths were reported, after which it continued to fall till the end of November; but the deaths in December (54) were more than double those in the previous month. Altogether during the year 2,510 deaths from cholera are recorded. This is by far the highest number that has taken place since 1865. Indeed it has only been three times exceeded during the preceding 20 years, and the unusual fatality of the disease may be learnt from the fact, that the number of cholera deaths in 1877 exceeded the aggregate number of deaths from this disease in the first 9 years after the establishment of the Public Health Department viz. from 1866 to 1874 both years inclusive. These results are shewn in the following table:—

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1857 ...	459	165	306	363	249	302	157	86	32	31	18	13	2,181
1858 ...	19	9	8	15	11	9	5	8	11	6	7	7	115
1859 ...	9	10	9	7	69	843	329	170	41	85	131	282	1,985
1860 ...	289	332	396	321	163	107	89	128	51	47	29	9	1,961
1861 ...	15	18	5	4	12	18	13	10	11	34	35	466	641
1862 ...	625	240	339	266	367	218	117	95	161	272	201	262	3,170
1863 ...	89	50	89	161	153	161	412	240	178	181	176	319	2,209
1864 ...	622	401	302	680	837	395	371	351	232	88	137	431	4,847
1865 ...	363	540	522	356	624	206	116	62	31	32	22	13	2,887
1866 ...	13	15	12	16	21	15	27	43	63	49	31	27	332
1867 ...	11	21	12	26	5	9	5	5	7	6	4	...	111
1868 ...	1	...	...	3	3	2	4	6	1	43	63	101	227
1869 ...	157	93	97	91	82	41	54	47	60	26	3	3	754
1870 ...	6	3	5	3	7	12	4	73	76	41	64	92	386
1871 ...	68	41	37	24	15	10	3	11	13	29	8	4	263
1872 ...	7	2	4	7	8	7	46	54	32	11	3	11	190
1873 ...	22	13	17	12	2	7	3	1	2	3	2	2	92
1874 ...	1	...	2	2	7	...	2	1	2	2	...	...	19
1875 ...	1	1	...	31	67	132	279	168	43	53	38	21	834
1876 ...	1	...	2	4	5	9	119	141	64	23	6	...	374
Mean for 20 years	139	98	108	120	135	125	108	85	56	53	49	103	1,179
1877 ...	1	61	111	185	337	704	495	337	162	42	21	54	2,510

Tanna.

In the Tanna Collectorate cholera was absent during the first 3 months of the year, but broke out at Direnhave in Taluka Karjat on the 9th April, and during the month attacked 5 other villages, 6 in all. In May it disappeared from 1; but appeared in 32 other villages, and in the Towns of Callian, Panwell and Bhiwandy, 40 in all. In June it disappeared from 27 villages, but attacked 52 fresh ones, 65 in all. In July it disappeared from 46 villages, but broke out in 83 new ones. It also reappeared in the 3 villages of Mahagaon, Coorla and Chemboor, leaving 105 villages affected in the district at the end of the month. In August, it left 74 of these, but attacked 54 fresh ones, and reappeared in 3 (Kelure Dhowli and Joo), 88 in all. In September it disappeared from 80 villages, but appeared in 24 fresh ones and re-appeared in 3 (Dewati, Mownad, and Saraswohal), 35 in all. In October it disappeared from 34 villages, appeared in 6 and re-appeared in 1 (Change), 8 in all. In November it disappeared from 6 villages, but attacked 4 fresh ones and appeared for the second time during the year at Kelwe, 7 in all. In December it disappeared from 4 villages, but broke out in 4 new ones, 7 in all.

Surat.

In the Surat Collectorate the first cholera case took place on the 6th of March at Turkesar, in Taluka Mándvi. This was the only case of cholera in the entire District during the month. In April the disease disappeared from Turkesar, but made its appearance at the town of Bárdoli. In May it disappeared from this place also, but attacked the village of Paria, in the Párdi R. C. In June it continued in this village and appeared in 4 others, thus leaving 5 affected villages at the end of the month. In July it disappeared from 3 villages, but attacked 9 fresh ones, 11 in all. In August it disappeared from 2 villages, appeared in 10 new ones, and re-appeared in 2 (Kosumba and Málwan), 21 in all. In September it disappeared from 11 villages, but attacked 7 fresh ones and re-appeared at the village of Paria, 18 in all. In October it disappeared from 11 villages, appeared for the first time in 15 fresh ones, and re-appeared in 2, (Katargaon and the Cantonment of Surat), 24 in all. In November the disease disappeared from 21 villages, but attacked 3 fresh ones, and re-appeared in one (Amroli), 7 in all. In December it disappeared from 6, but re-appeared in Surat City, thus leaving 2 places affected at the close of the year.

Broach.

In the Broach Collectorate cholera was absent for the first 6 months of the year, but it broke out in the town of Broach on the 12th July, and during the month the disease attacked several villages in the Wágra, Anklesar and Hánsot R. C. The total number of deaths from cholera during the month was 88, of which not less than 63 were reported from the town of Broach. In August cholera disappeared from almost all the villages affected, but attacked 4 fresh ones, including Anklesar T. C. In September the disease disappeared from all these villages except one in Hánsot R.C., but attacked 6 fresh ones in the Broach Taluka. In October it disappeared from 4 villages, including the one in Hánsot, but appeared in one fresh one in the Broach R. C., thus leaving only 5 villages affected at the end of the month. In November cholera disappeared from 4 villages, but broke out for the first time in 4 new ones, 5 in all. In December it left these, but appeared in one fresh village.

Kaira.

Cholera did not break out in the Kaira Collectorate until the 24th October, when it appeared at Dákor, Taluka Thásra, and during the month 2 more villages were attacked, 3 in all. In November it disappeared from 2 of these, but attacked 18 fresh ones, 19 in all. In December it disappeared from 17 villages, but appeared in 6 new ones, thus leaving 8 villages affected in the District at the end of the year.

Panch Máháls.

In the Panch Máháls an isolated case of cholera was reported from Odedra, in Godhra R. C., on the 30th of March. April and May passed without any cholera being reported from the District. In June an outbreak occurred in 2 villages, (Vallabhpur and Hurla), which caused 4 deaths. From July to October there were no deaths reported

from the disease, but in the month of November it appeared in 11 villages. In December it disappeared from 8 villages, but appeared in 9 fresh ones, thus leaving 12 villages affected at the end of the year.

Ahmedabad.

In the Ahmedabad Collectorate cholera was absent for the first 9 months of the year, but it broke out at the town of Dholka on the 27th of October, and during the month it appeared in the town of Ahmedabad. In November it continued in these towns and appeared for the first time in 24 new villages, leaving 26 affected places at the end of the month. In December it disappeared from 19 villages, including the towns of Ahmedabad and Dholka, but attacked 6 fresh ones, 13 in all.

The following table shews the districts in which the deaths from cholera are reported by towns and villages. From it, it will be seen that the ratio of the affected Town population to that of all the other Towns in the affected districts was 647 per 1,000, and the ratio of deaths to affected population in affected Towns was 4·02 per 1,000, whilst that of deaths in affected towns to general Town population of the district was 3·80 per 1,000, whilst in villages the ratio of affected village population to that of all the villages in the affected districts was 149 per 1,000, and the ratio of deaths in affected villages to affected population was 24 per 1,000, whilst the ratio of deaths in affected villages to general village population was 3·50 per 1,000.

Districts.	Number of Towns.	Population of Towns.	Number of Towns affected.	Population of Towns affected	Date of: First case in Towns.	Date of: Last case in Towns.	Number of Deaths from Cholera in Towns.	Ratio of Population of affected Towns to every 1,000 of Population of all Towns in District.	Ratio of Deaths to every 1,000 of affected Population in Towns.	Ratio of Deaths to every 1,000 of Population of all Towns in District.	Number of Villages.	Population of Villages.	Number of Villages affected.	Population of Villages affected.	Date: First case in Villages.	Date: Last case in Villages.	Number of Deaths from Cholera in villages.	Ratio of Population of affected Villages to every 1,000 of Population of all Villages in District.	Ratio of Deaths to every 1,000 of affected population in Villages.	Ratio of deaths to every 1,000 of Population of all Villages in District.
Khandesh	22	174,908	9	83,458	15th July ..	20th September.	248	465·15	2·98	1·42	2,603	853,734	227	165,746	4th July ..	11th November.	1,446	194·14	8·60	16·7
Násik	6	70,625	4	57,432	10th June ..	25th December.	328	813·19	5·76	4·64	1,628	663,761	209	59,668	19th April ..	31st December.	1,635	89·90	27·40	24·7
Ahmednagar	8	79,551	4	54,833	13th May ..	30th November.	261	689·91	4·76	3·28	1,334	694,384	267	179,711	29th January ..	23rd do. ..	2,487	258·81	13·85	35·8
Poona	10	172,713	3	129,184	23rd January ..	31st December.	489	747·97	3·78	2·83	1,174	734,522	283	177,158	5th do. ..	22nd do. ..	3,184	241·19	17·92	4·51
Sholápur	11	106,750	3	88,238	7th do. ..	8th September.	160	826·59	1·81	1·50	1,405	1,009,300	124	105,276	1st do. ..	31st do. ..	1,194	104·03	11·34	1·18
Satara	8	120,315	3	46,956	18th do. ..	23rd December.	289	390·27	6·15	2·42	639	542,671	410	294,380	18th do. ..	11th do. ..	6,413	542·47	21·78	11·82
Belgaum	16	147,111	4	54,477	1st do. ..	31st December.	490	383·97	8·67	3·33	1,062	791,639	349	269,005	1st do. ..	31st do. ..	7,867	328·44	30·26	9·94
Dhárwar	16	168,976	4	95,755	do. do. ..	do. November.	943	566·68	9·85	5·58	1,293	819,061	364	230,412	do. do. ..	17th September.	7,836	281·31	34·08	9·57
Kaládgi	11	96,181	1	6,592	do. do. ..	do. September.	102	68·54	15·47	1·06	1,143	719,856	230	134,670	do. do. ..	13th October ..	7,022	187·08	52·01	9·75
Kanara	6	44,988	2	24,195	3rd do. ..	16th October ..	176	537·88	7·27	3·91	966	353,418	266	97,092	3rd do. ..	31st December.	2,628	274·72	27·07	7·44
Ratnágiri	7	64,505	2	25,610	14th June ..	31st do. ..	152	397·02	5·81	2·36	1,242	954,631	not stated.		do. February.	30th do. ..	2,973	not obtainable.		3·11
Colába	4	24,528	2	12,104	12th February ..	21st August ..	99	493 48	8·18	4·03	961	325,877	50	16,955	16th do.	18th do. ..	1,025	52·03	60·46	3·14
Bombay City	1	644,405	1	644,405	9th January ..	31st December	2,510	1,000·00	3·90	3·90	..	....	..	..	....	....	..	..	..	..
Tanna	9	81,366	3	37,939	21st April ..	14th August ..	352	466·28	9·28	4·33	2,110	766,058	262	89,106	9th April ..	31st December.	2,835	116·32	31·82	3·70
Surat	3	128,742	3	128,742	1st July ..	31st December.	420	1,000·00	3·33	3·33	775	478,345	48	73,130	6th March ..	29th November.	549	152·88	7·51	1·15
Broach	4	67,395	4	67,395	12th July ..	16th November.	150	1,000·00	2·23	2·23	401	232,927	not obtainable.		23rd July ..	2nd December.	152	401·71	1·51	0·61
Kaira	13	137,297	2	30,017	21st November.	4th December.	67	218·63	2·23	0·49	572	645,436	24	65,289	24th October ..	31st do. ..	138	101·15	2·11	0·21
Panch Máhálś	2	22,107	2	22,107	10th do. ..	13th do. ..	71	1,000·00	3·21	3·21	661	218,636	22	24,770	30th March ..	do. do. ..	105	113·29	4·24	0·48
Ahmedabad	13	236,918	5	184,081	27th October ..	23rd do. ..	138	776·98	0·75	0·58	868	592,719	27	36,967	3rd November.	do. do, ..	147	62·37	3·98	0·26
Kurrachee	3	69,426	..	..	....	....	..	..	..	..	707	354,069	..	..	....	....	..	..	..	..
Hyderabad	1	41,152	..	..	....	....	..	..	..	..	3,853	680,795	..	..	....	....	..	..	..	..
Thar and Párkar	..	..	..	..	....	....	..	..	..	..	51	181,761	..	..	....	....	..	..	..	..
Shikárpur	4	70,648	..	..	....	....	..	..	..	..	955	705,579	..	..	....	....	..	..	..	..
Upper Sind Frontier	1	5,205	..	..	....	....	..	..	..	..	75	84,780	..	..	.....	....	..	..	..	..
Total ..	179	2,775,802	61	1,795,570	1st January ..	31st December	7,454	647·87	4·02	3·80	37,047	13,405,939	3,162	2,010,335	1st January :	31st December.	49,798	149·96	24·77	3·50

* For 22 Districts only.

The sketch map illustrates the distribution of, and comparative mortality from cholera in the different circles of mortuary registration in the Presidency during 1877. In the statement which will be found in the appendix, I have added a column to the form ordered by the Government of India, by which each affected place is distinguished by a particular number. There can therefore be no difficulty in tracing each circle on the map.

Small-pox.

During 1877, 13,748 males and 13,621 females or a total of 27,369 persons, are reported to have died in the Bombay Presidency from small-pox. This number of deaths is the highest yet recorded and exceeds the total of 1876 by 15,552 and the quinquennial average by 16,072. The ratio of deaths from this disease per 1,000 of population was 50·24 for males and 49·76 for females.

The registration circles, in which the ratio of mortality exceeded 5 per 1,000, are shown in the next table, from which it will be seen that the ravages of small-pox were for the most part confined to the Khandesh and Nasik Collectorates in the Northern Deccan Registration District. It however prevailed to a considerable extent in Dharwar. The highest ratio among the circles of registration took place at Parola R.C., in the Khandesh Collectorate, where it reached the very high rate of 11·71 per 1,000.

District.	Registration Circle.	Ratio of deaths per 1,000 of Population.	District.	Registration Circle.	Ratio of deaths per 1,000 of Population.
Khandesh	Dhulia R.C.	5·50	Násik	Dindori R.C. ...	5·06
	Amalner „	9·66		Chandor „ ...	5·54
	Parola „	11·71		Nándgaon „ ...	6·28
	Erandol „	6·86		Málegaon „ ...	6·75
	Páchora „	6·07		Násik T.C. ...	5·70
	Bhadgaon R.C. ...	7·23		Yeola „ ...	10·25
	Nizampur „ ...	5·17	Ahmednagar ...	Kopergaon R.C. ...	5·93
	Chopra „ ...	6·12		Sangamner „ ...	5·31
	Yáwal „ ...	10·26	Dharwar ...	Kod „ ...	5·77
	Ráver „ ...	6·64		Ránibennur T.C. ...	11·61
	Bhusáwal „ ...	10·98	Ratnágiri ...	Ratnágiri „ ...	7·35
	Edalábad „ ...	7·00	Kolába	Alibág „ ...	6·41
	Nusseerabad „ ...	8·65	Surat	Jalálpur R.C. ...	7·97
	Nundurbar T.C. ...	6·38		Bulsar „ ...	5·98
	Chopra „ ...	6·30	Broach ...	Ankleshwar „ ...	5·21
	Nusseerabad „ ...	5·13		Broach T.C. ...	7·80

The following table shows the number of deaths from small-pox, recorded in each month of the year and the ratio of deaths per 1,000 of population :—

Months.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Number of Deaths	4,465	4,437	5,949	5,097	3,325	1,630	911	514	347	217	228	249	27,369
Ratio of deaths per 1,000 of Population ..	0·27	0·27	0·37	0·31	0·25	0·11	0·06	0·03	0·02	0·01	0·01	0·01	1·69

The epidemic began in the month of October 1876, when 394 deaths were reported. In November 1,020 persons died from it, and in December 2,437 deaths were ascribed to this cause. In January 1877, 4,465 deaths took place, and though there was a slight fall in February, small-pox attained its maximum for the year in March, when 5,949 persons died from this cause. In April it began to fall, though it caused in that month 5,097 deaths. A still further fall took place in May, and it continued to decrease steadily month by month until

RUN of CUTCH
NAGAR PARKAR
Deesa
PALANPUR
RADHANPUR
EDAR
BHUJ
SADRA
AHMEDABAD
DHRÁNGADRÁ
KAIRA
GULF of CUTCH
NAWANAGAR
RAJKOT
BARODA
Narbudda River
GULF of CAMBAY
BROACH
JUNAGARH
Tapti River
SURAT
DHULIA
NASIK
Godavery R.
TANNA
AHMEDNAGAR
BOMBAY

SKETCH MAP

TO ILLUSTRATE THE

DISTRIBUTION OF, AND COMPARATIVE MORTALITY

from

CHOLERA

in the

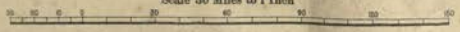
DIFFERENT CIRCLES OF MORTUARY REGISTRATION

OF THE PRESIDENCY OF BOMBAY

During the Year

1877.

Scale 30 Miles to 1 Inch



N.B. Figures in black ink shew the Number of the Registration Circle. These Numbers are given in Column 5 of the "Statement appended to Map." Figures in red ink shew the ratio of deaths from Cholera per 10,000 of population. The fractional figures indicate the date of first cases in each circle. Thus $\frac{7}{7}$ means 7th July.

Photozincographed at the Govt Office Poona 1878

October, when only 217 deaths were registered. A slight increase occurred in the number of deaths during the 2 last months.

The above figures are not satisfactory, as they tend to show that there must be still a very large number of persons unprotected by vaccination. I regret that the information as to the villages in each district and the number of deaths among children of different ages have not been supplied by the District Officers.

Fever.

The deaths under this heading are greatly in excess of the recorded annual average mortality from this class of disease as 336,865 persons are said to have died from fever in 1877: of these 186,975 deaths took place among males and 149,890 among females, the ratio being 80 females to 100 males. This is less than in 1876, when the deaths were in the proportion of 87 females to 100 males.

The following table shows the number of deaths from fever, the ratio to total population, and the percentage to total deaths in each year of the decade ending 31st December 1877:—

Years.	Number of Deaths from Fever.	Ratio per 1,000 of Population.	Percentage to Total Deaths.
1868	97,665	7·63	52·73
1869	129,117	9·29	45·33
1870	131,035	9·69	59·63
1871	167,677	11·85	59·94
1872	206,747	12·74	56·33
1873	188,201	11·48	64·67
1874	188,717	11·10	65·93
1875	129,156	13·11	58·33
1876	220,833	13·65	59·67
1877	336,865	20·79	53·67

The death-rate from fever in 1877 was 20·79 per 1,000 of population and formed 53·67 per cent. of total deaths.

By Districts.

The highest-rate per mille, according to districts, was returned from Kaládgi, where it reached the very high figure of 50·55. Dharwar follows with a death-rate from this cause of 40·40 per mille; and next to it Satara, 29·74; Belgaum, 26·91. In these districts where the famine was most severe, the highest death-rates from fever are found; but in Bombay City where there was no famine although there was a large importation of destitute persons from these districts, the rate was the very high one of 19·84 against 8·73 in the previous year and in Kanara the rate nearly equalled that of Belgaum as it rose to 26·76. The lowest recorded death-rate was in the Upper Sind Frontier where it amounted to 7·02 per mille. These results are tabulated in the next statement.

Mean for the Presidency during 1877 *per* 1,000 *of Population*—20·79.

Districts.	Above the Mean.		Districts.	Below the Mean.	
	Number of Deaths from Fever.	Ratio per 1,000		Number of Deaths from Fever.	Ratio per 1,000.
Kaládgi	41,248	50·55	Bombay City	12,788	19·84
Dharwar	39,915	40·40	Tanna	15,746	18·58
Satara	31,555	29·74	Kaira	11,912	15·22
Belgaum	25,267	26·91	Broach	5,253	14·99
Kanara	10,662	26·76	Surat	8,865	14·60
Ahmednagar	19,424	25·10	Ahmedabad	11,755	14·18
Sholápur	16,941	23·59	Khandesh	14,386	13·99
Poona	19,753	21·77	Kurrachee	5,350	13·10
Násik	14,899	21·68	Panch Máháls	3,037	12·61
			Thar and Párkar... ...	2,225	12·32
			Hyderabad	7,128	9·87
			Colába	3,281	9·36
			Ratnágiri...	8,449	8·33
			Shikárpur	6,394	8·24
			Upper Sind Frontier ...	632	7·02

In 19 out of the 222 registration circles the annual death-rate from fever exceeded 20 per 1,000.

The monthly distribution of the deaths from fever in each of the nine affected districts and in the Presidency is shown in the next table:—

Districts.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Khandesh	1,092	1,058	1,200	1,245	1,288	980	1,015	1,619	1,385	1,143	1,249	1,112	14,386
Násik ...	1,090	824	1,023	1,171	1,008	882	1,192	1,500	1,495	1,489	1,622	1,600	14,899
Ahmednagar ...	964	845	1,196	1,162	1,389	1,296	1,763	2,171	2,552	2,289	2,171	1,626	19,424
Poona	1,083	967	1,421	1,612	1,575	1,497	1,766	1,986	1,798	1,903	2,100	2,045	19,753
Sholápur	641	602	698	841	1,017	1,051	1,260	1,792	2,194	2,235	3,033	1,577	16,941
Satara	1,372	1,157	1,615	2,062	2,307	2,281	3,486	4,185	3,602	3,398	3,403	2,687	31,555
Belgaum	1,228	1,152	1,314	1,639	1,988	2,327	2,772	3,255	2,603	2,036	2,353	2,600	25,267
Dharwar	1,510	1,491	1,748	1,782	2,251	2,823	4,060	5,128	5,226	4,452	4,560	4,884	39,915
Kaladgi	948	992	1,258	1,850	2,853	3,111	3,776	3,529	4,546	5,482	7,743	5,160	41,248
Total of 9 Districts.	9,931	9,088	11,473	13,364	15,676	16,248	21,090	25,165	25,401	24,427	28,234	23,291	2,23,388
Presidency...	19,607	17,686	22,258	23,580	24,986	24,046	29,322	33,720	34,221	33,753	38,937	34,749	3,36,865

In the 9 districts the marked increase in the number of deaths from fever during the rainy months, especially after the heavy rain in the autumn, will at once attract attention. In considering these deaths, it must always be remembered that the term "fever" is used by Natives in describing all diseases which are accompanied by an increase of temperature. It is impossible therefore to say how many of these deaths were due to malarial fevers, though I think from the foregoing table there is but little room for doubt that the mortality recorded under this heading in the famine districts, was, at all events during the latter half of the year, principally due to remittent fever.

Throughout the Presidency there were 19,607 deaths from fever in January against 21,620 in the preceding month, and the number was still less in February, but in March a decided increase took place, and the deaths from this cause continued to be greatly in excess of the average until the maximum of the year was reached in November, when 38,937 deaths were recorded. The highest mortality occurred in the fourth quarter of the year, as was to be expected, after the excessive rainfall in September and October.

Before concluding this section I may perhaps be allowed briefly to mention that in April, Government ordered a special enquiry to be made by the Surgeon General, Indian Medical Department, regarding the nature of the fever which was said to affect some of the immigrants into Bombay, and which had been described as relapsing fever. Surgeon-General Hunter submitted his report on the action

taken by him to carry out the wishes of Government in July, and the conclusions he came to upon the evidence before him were: "1st, that the contagious relapsing fever of Europe has had no existence in Bombay." 2nd, that the fever is of a remittent character, has its origin in malaria, and is consequently not contagious."

Dr. Lewis, Special Assistant to the Sanitary Commissioner with the Government of India, visited Bombay in May and made careful enquiries regarding the nature of the fever which was then prevalent, and in reporting on its character came to the same conclusions as Surgeon General Hunter. I can, state from personal observation, that what are generally believed to be the causes of remittent fever were greatly in excess in the city of what in my opinion they ought to have been; for during my long connection with Bombay I have never seen the City since the establishment of the Public Health Department in as filthy a condition as it was when I inspected it by order of Government in company with Dr. Carter in May.

Although personally agreeing with Surgeon-General Hunter, I feel it right to record that much diversity of opinion exists as to the nature and character of the fever which prevailed in Bombay throughout the year; and some eminent members of the profession, among whom I may particularly mention Dr. Vandyke Carter, hold strong views as to there having existed in Bombay a widespread epidemic of Relapsing Fever which I believe I am right in stating in Dr. Carter's opinion was not confined to Bombay but which he considers also existed in the famine districts. Time doubtless will confirm the correctness of one view or the other, but all I can say is that none of the observers to my knowledge in any of the famine districts appear to consider the type of fever which prevailed in them so extensively as other than the usual Remittent Fever so commonly met with. Dr. Wall, the Deputy Sanitary Commissioner of the Southern Mahratta Country, made an especial enquiry as to the cause and nature of the fever which especially prevailed in the Kaladgi district and he reported that it was intermittent and remittent fever caused by Malaria, following the heavy autumnal rains.

We are indebted to Dr. Vandyke Carter for having first discovered and directed attention to the presence of the spirillum in the blood in fever cases in India. Up to this time its existence has been considered by observers in Europe diagnostic of Relapsing Fever, but Surgeon-General Hunter shows, that, this organism was found in undoubted cases "of enteric or typhoid fever in pneumonia, and remittent fever, and possibly even in fevers of an intermittent type."

Contagion, so peculiarly a characteristic of relapsing fever, has not, as far as I am aware, yet been established as regards the fever that prevailed in Bombay, though I believe, Dr. Carter is of opinion that it was contagious, and possesses some facts that bear out his views, whilst the high death rate 25·9 per cent., which Surgeon-General Hunter shows, attended the fever cases treated in Bombay, would also seem to prove that it was not relapsing fever, the mortality from which does not exceed 5 per cent. The subject is still under investigation and we may be sure that in Dr. Carter's able hands the enquiry will be scientifically, patiently, and thoroughly worked out.

Bowel Complaints.

35,233 males and 25,024 females or a total of 60,257 persons are returned as having died from bowel complaints, which consist principally of diarrhœa and dysentery. The number of deaths exceeds the total recorded during the year 1876 by as much as 26,574, and many of these deaths may be ascribed to Famine Diarrhœa and Dysentery, produced doubtless by eating improper food and by long continued privation, inducing, as found by Surgeon D. D. Cunningham, Special Assistant to the Sanitary Commissioner with the Government of India, a "softening and subsequent atrophy of the mucous membrane of the intestinal canal due to apparently to a process of fatty degeneration of the tissues and leading to the destruction of the apparatus provided for the absorption of nutritive material." The ratio of total deaths per 1,000 of population is 3·72 which exceeds the corresponding ratio for 1876, by 1·63.

The following table shows the number of deaths, and the ratio of deaths per mille since 1868 :—

Years.	Deaths from Bowel Complaints.	Ratio of Deaths per 1,000 of population.	Years.	Deaths from Bowel Complaints	Ratio of Deaths per 1,000 of population.
1868	17,373	1·51	1873	33,664	1·62
1869	19,361	2·15	1874	26,259	1·66
1870	30,128	1·91	1875	26,990	2·07
1871	25,836	2·15	1876	33,683	2·09
1872 ...	30,422	2·22	1877	60,257	3·72

These diseases, as in 1876, were most prevalent in the Dhárwar Collectorate, where as many as 12,230 deaths were recorded; whilst only 13 deaths were reported from the Upper Sind Frontier District.

The following table shows the Districts in which the deaths from Bowel Complaints were most numerous :—

Districts.	No. of Deaths.	Ratio per 1,000 of population.	Districts.	No. of Deaths.	Ratio per 1,000 of population.
Dharwar	12,230	12·38	Surat	1,286	2·12
Satara	7,796	7·35	Ahmedabad	771	0·93
Kaládgi	6,102	7·48	Tanna	502	0·59
Belgaum	5,632	6·00	Broach	437	1·25
Sholápur	5,016	6·99	Kolába	312	0·89
Bombay City	3,545	5·50	Shikarpur	203	0·26
Khandesh	3,037	2·96	Panch Máháls	121	0·50
Ahmednagar	2,884	3·73	Hyderábad	75	0·10
Kanara	2,345	5·94	Thar and Párker	51	0·24
Poona	2,270	2·50	Kurrachee	46	0·11
Ratnágiri	2,009	1·97	Upper Sind Frontier	13	0·14
Kaira	1,810	2·31			
Nasik	1,764	2·71	Total ...	60,257	3·72

The monthly distribution of the deaths during each of the last five years, will be seen from the following table :—

Years.	Deaths from Bowel Complaints.												
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1873	2,241	1,545	1,885	1,786	2,140	1,920	2,428	2,814	2,543	2,549	2,265	2,143	26,259
1874	2,062	1,638	1,892	1,860	2,011	2,296	2,701	3,054	2,476	2,457	2,235	3,308	26,990
1875	2,378	1,897	2,147	2,390	2,456	2,862	3,751	4,071	3,584	2,860	2,644	2,610	33,650
1876	2,370	2,132	2,331	2,513	2,662	2,660	3,337	4,123	3,521	2,655	2,681	2,698	33,683
1877	2,777	2,717	3,270	3,527	4,201	5,012	6,799	8,666	9,176	6,825	4,373	2,914	60,257

Accidents and Violence.

In 1877, 4,386 males and 3,153 females or a total of 7,539 persons are said to have lost their lives from causes other than natural. This number exceeds the corresponding figures for the previous year by 1,611.

Of the total deaths under this heading, 1,155 were suicidal against 773 in 1876, 1,261 died from snake bite or were killed by wild beasts against 1,258 in 1876, and 5,123 died from being wounded or from accidental causes against 3,463 in 1876.

Suicidal Deaths.

Of the 1,155 suicides, 771 persons drowned themselves, 72 took poison, 280 hanged themselves, and 32 inflicted mortal wounds on their person.

Deaths from snake bites, and from wild beasts.

1,181 persons died from the effects of snake-bite, and 80 persons are said to have been killed by wild animals. Of these latter 10 deaths were reported from Kaira, 9 from Násik, 7 from Khandesh, and 7 from Hyderabad.

The following table shows the monthly distribution of deaths from snake-bite during the last 5 years, from which it will be seen that the largest number of deaths from this cause obtained as usual during the rainy season :—

Months.	Year.				
	1873.	1874.	1875.	1876.	1877.
January	32	33	23	43	18
February	24	24	19	32	16
March	47	34	56	47	41
April...	49	61	68	57	34
May	84	95	83	82	105
June	137	159	169	148	143
July	150	181	166	193	178
August	177	166	184	160	232
September	154	147	164	156	183
October	125	121	153	154	112
November	62	47	80	58	75
December	31	43	42	34	44
Total ...	1,072	1,111	1,207	1,164	1,181

Deaths from snake-bite by Districts.

The next table shows the number of deaths from snake-bite according to localities during each of the 5 years ending the 31st December 1877. As usual the highest mortality is returned from the districts of Hyderabad, Ratnágiri, and Tanna.

Districts.	1873.	1874.	1875.	1876.	1877.
Khandesh	42	39	40	34	41
Násik	13	6	32	22	10
Ahmednagar	17	11	8	15	11
Poona	38	29	27	34	19
Sholápur	39	57	47	49	4
Satara	10	9	10	10	41
Belgaum	39	39	26	35	28
Dharwar	23	23	34	25	16
Kaládgi	28	26	23	26	13
Kanara	27	17	23	30	37
Ratnágiri	122	102	144	123	102
Kolába	25	21	26	24	19
Bombay City	4	1	8	8	3
Tanna	78	111	108	90	129
Surat...	40	39	45	54	48
Broach	22	34	26	27	28
Kaira...	69	106	73	54	90
Panch Máháls	44	38	42	39	60
Ahmedabad	60	75	80	52	58
Kurrachee	68	64	78	94	98
Hyderabad	141	155	183	199	206
Thar and Párkar	32	36	49	50	57
Shikárpur	75	64	66	60	55
Upper Sind Frontier	16	9	9	10	8
Total ...	1,072	1,111	1,207	1,164	1,181

Accidents.

2,588 persons are said to have been accidentally drowned, 1,203 of these were drowned in wells, 435 in tanks, and 950 otherwise. Besides the above, 107 bodies were found in wells, 49 in tanks, and 122 in other places.

SECTION VII.

GENERAL HISTORY OF VACCINATION.

No change in the Vaccination Districts and Circles.

1. The Vaccination Districts and Circles of Superintendence, as constituted in November 1876, have undergone no change during 1877-78, but, as might have been expected for the Deccan and Konkan Districts, the work for the year has been seriously compromised by the effects of the late famine—so much so, that although there is an increase for Guzerat and Sind, the total out-turn for the year is below that for 1875-76.

Changes in the Administrative Staff.

2 The loss sustained by the death of Dr. McAlister was alluded to by Mr. Hewlett in the * Report for 1876, and since that sad event the charge of the Konkan District has changed hands, no less than four times. It was first held by Dr. Niven, then by Dr. Ross, then by Dr. Barren, and lastly by Dr. MacRury. This officer assumed charge on the 8th December 1877, but, on the 31st January 1878, was transferred to the Sind District in succession to Dr. Leggatt, who, in his turn, had handed down his charge to Dr. Hopkins, the Civil Surgeon of Kurrachee. These constant changes are inevitable in India, and it is hardly necessary to say, that they affect the work of the Department. In the South Deccan District, Dr. Wall, the Deputy Sanitary Commissioner, was compelled by ill health to proceed Home, and he was succeeded by Dr. Bainbridge, the Civil Surgeon at Satara. With these exceptions there were no other changes amongst the supervising officers.

3. The Bombay Vaccination Act (No. I of 1877) came into force in the City of Bombay on 1st September 1877, and its working has been fully treated of elsewhere in this report.

Strength of the Department.

4. The subjoined table gives the strength of the Department for the year under report, and for the previous year 1876-77 :—

* Sec. VII., p. 199, para. 72.

No.	Districts and Circles.	Area in Square Miles.	Population according to Census of 1872.	1877-78.																1876-77.															
				Deputy Sanitary Commissioners.	Superintendents of Vaccination.	Inspectors of Sanitation and Vaccination.	Assistant Superintendents of Vaccination.	Clerks.	Number of Vaccinators.							Number of Peons.					Total Strength.	Deputy Sanitary Commissioners.	Superintendents of Vaccination.	Inspectors of Sanitation and Vaccination.	Assistant Superintendents of Vaccination.	Clerks.	Number of Vaccinators.							Number of Peons					Total Strength.
									Government.		Municipal.	Cantonment.	Local Funds.	Native States.	Total.	Government.	Municipal.	Local Funds.	Native States.	Total.							Government.		Municipal.	Cantonment.	Local Funds.	Native States.	Total.	Government.	Municipal.	Local Funds.	Native States.	Total.	
									Civil.	Military.																	Civil.	Military.										
1	Northern Deccan Rigistration District.	38,960	4,296,187	1	...	7	...	2	...	...	9	1	58	2	70	11	8	58	2	79	159	1	...	6	...	2	...	...	9	1	54	2	66	10	8	54	2	74	149
2	Southern Deccan do. ...	28,110	5,554,665	1	...	5	1	2	...	...	10	...	43	30	83	9	10	43	31	93	185	1	...	5	1	2	...	...	9	...	43	30	82	9	9	43	31	92	183
3	Konkan ... do. ...	15,888	2,915,587	1	...	4	...	2	...	...	2	...	40	3	45	8	2	40	6	56	108	1	...	4	...	2	...	...	2	...	40	3	45	8	2	40	8	58	110
4	Presidency Circle	22	644,405	...	1	...	1	2	...	...	9	...	...	...	9	...	3	...	...	3	16	...	1	...	...	...	...	...	16	...	...	..	16	..	5	...	...	5	22
5	Eastern Guzerat Registration District.	19,743	3,977,490	1	...	5	...	2	...	...	8	...	35	19	62	9	8	35	16	68	138	1	...	5	...	2	...	...	8	...	34	19	61	9	8	34	16	67	136
6	Western Guzerat Circle ...	26,380	2,815,215	...	1	...	2	2	2	...	...	...	...	41	43	8	...	...	41	49	97	...	1	...	2	2	2	...	...	...	...	40	42	8	...	...	40	48	95
7	Sind Registration District ...	49,307	2,322,765	1	...	6	...	2	...	...	5	...	43	2	50	10	3	43	2	58	117	1	...	6	...	2	...	...	6	..	43	2	51	10	3	43	2	58	118
8	Baroda Circle...	10,767	2,000,225	...	...	3	...	...	...	...	...	...	...	31	31	...	..	...	34	34	68	...	1	...	3	1	...	...	...	...	...	26	26	...	...	...	29	29	60
9	Cutch Circle	6,500	487,305	...	...	...	1	...	...	.	...	...	...	15	15	...	...	...	16	16	32	...	1	...	1	...	...	...	...	...	..	13	13	...	...	...	15	15	30
10	Aden	11	19,289	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	1	..	...	...	...	...	1
	Military Stations	...	32,622	...	...	...	...	...	...	3	...	...	...	...	3	...	...	...	...	...	3	...	...	...	..	...	...	3	..	...	...	...	3	...	...	...	...	...	3
		195,688	25,065,755	5	2	30	5	14	2	3	44	1	219	143	412	55	34	219	148	456	924	5	4	26	7	13	2	3	51	1	214	135	406	54	35	214	143	446	907

The Department now numbers 5 Deputy Sanitary Commissioners, 2 Superintendents of Vaccination, 30 Inspectors of Sanitation and Vaccination, 5 Assistant Superintendents of Vaccination, 412 Vaccinators, 14 Clerks, and 456 Peons. The strength of the previous year has been increased by 4 Inspectors, 1 Clerk, 6 Vaccinators and 10 Peons.

Decrease in the Establishment.

The services of eight Municipal Vaccinators were dispensed with, one in Rohri, a town in the Shikârpur Collectorate, and seven in the City of Bombay, consequent on the introduction of the Bombay Vaccination Act (No. I of 1877).

Increase in the Establishment.

Five additional Local Fund vaccinators were entertained during the year—two in the Poona Collectorate for the Poud and Bárámati Pethas of the Haveli and Bhimthari talukas, one between the Karmala and Mádha talukas of the Sholápur Zillah, and one in the Ahmedabad Zillah.

In the Native States one additional vaccinator was entertained in Kattywar for the Madhaopur District, five for Baroda, and two in Cutch.

One additional Inspector of Sanitation and Vaccination was appointed in the Northern Deccan Registration District to complete the Establishment and two clerks (paid out of Municipal Funds) were added to the Presidency Circle of Superintendence. The increase of ten peons on the whole Establishment, was consequent on the increased number of vaccinators.

Recommendations to increase the number of Vaccinators.

5. Thirteen additional Local Fund Vaccinators are required, one for each of the more populous talukas of Khed, Dáhánu, Sháhápur, Mahád Bágalkot, Hungund, Bádámi, Indi, Daskrohi, Viramgám, Parántij, Borsad, and Nariád, and the Local Fund Committees of the Poona, Tanna, Kaládgi, Colába, Ahmedabad, and Kaira zillahs would, as the opportunity offers, increase their grants for vaccination. The Collector of Khandesh has arranged to entertain eight extra vaccinators during the current year.

Nunmber of persons Vaccinated and Re-vaccinated.

6. The total number of persons vaccinated in the year under report was 750,948, which compared with the total for 1876-77, shows a decrease of 64,229. The following table shows the comparative work for the year among the civil population and in the army :—

1877-78.			1876-77.	
Primary Vaccinations.	Re-vaccinations.		Primary Vaccinations.	Re-vaccinations.
		In Civil Life.		
644,338	76,115	Itinerant Establishment	...705,182	77,111
20,201	3,356	Dispensary Establishment	... 19,996	2,999
664,539	79,471		725,178	80,110
744,010		Civil Life Total	... 805,288	
6,938		Army Total	... 9,889	
5,516	1,422		7,006	2,883
750,948		Total Vaccinations in Bombay Presidency	 815,177	

Causes of decrease in Primary Vaccinations.

7. There were 670,055 persons primarily vaccinated during the year, just 62,129 less than in 1876-77. This decrease is distributed over the Northern and Southern Deccan and Konkan Registration Districts, the Presidency and the Western Guzerat Circles and the Bombay Army. The decrease was general in the Northern and Southern Deccan Registration Districts and the Native States that come under them, and is due to the general spread of small-pox throughout them and to the migration of the people hither and thither on account of famine.

The decrease in the Konkan Registration District was confined to the Colába and Tanna Collectorates only, and is attributable to the prevalence of sickness among the vaccinators in the Tanna Zillah and to the outbreak of cholera in the Colába Collectorate. The causes of the decrease in the Presidency Circle may be set down to the fact, that for some months the masses were not aware of the introduction of the Compulsory Vaccination Act, which required that they should attend at certain stations duly notified. In addition fevers and measles were very prevalent, and the severe epidemic of small-pox having passed, there was the usal laxity in attending at the several vaccination stations.

The decrease in the Western Guzerat Circle is only 169, and needs no comment. In the Bombay army it amounts to 1,490, but the monthly returns showed few unprotected persons.

The number of persons primarily vaccinated, as well as the increase or decrease during each of the last ten years, is subjoined :—

Primarily Vaccinated.	Years ended 31st December.		Years ended 31st March.								
	1867.	1868.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.
Number..	391,415	432,184	464,667	496,582	527,153	570,025	625,818	671,817	690,639	732,184	670,055
Increase	..	40,769	32,483	31,915	30,571	42,872	55,793	45,999	18,822	41,545	Decrease. 62,129

Out of this total of 670,055 persons primarily vaccinated, the operation had to be performed more than once in 4,068 instances, and there were 22,202 unsuccessful cases. As it is so difficult to induce the people to bring up their children a second time, it is all the more necessary that the primary operations should be most carefully performed. The number of persons in which the vaccinators could not ascertain the result of their operations was 21,331, so, out of 674,123 primary operations, 630,590 were successful: in other words, so many persons were protected. In every 100 persons primarily operated on, protection has been afforded to 94·11; this is 1·24 per cent. less than in the preceding year.

Result in Primary Vaccinations.

The following table shows the number of persons primarily vaccinated and the percentage of success :—

	Year ended 31st December.	Years ended 31st March.							
	1868.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.
Number of persons Primarily Vaccinated ..	432,184	464,667	496,582	527,153	570,025	625,818	671,817	690,639	732,184	670,055
Ditto successfully	404,860	427,391	452,661	486,018	516,726	568,275	635,982	660,556	698,148	630,590
Percentage of success	93·68	91·93	91·16	92·20	90·65	90·81	94·67	95·64	95·35	94·11

9. The number of persons re-vaccinated this year amounted to 80,893, or 2,100 below the number for 1876-77. The chief decrease took place in Sind and the Native Army. The decrease in Sind is mainly attributable to the great aversion the people generally have to re-vaccination, and in the case of the Native Army there were fewer unprotected. There was also a decrease in the Northern Deccan Registration District, Presidency Circle, Baroda, and Aden, but it is too small to need any special remark.

Causes of decrease in Re-vaccinations.

10. Out of 80,893 persons re-vaccinated, 522 were operated on a second time; in 12,614, the operation failed, and 7,954 escaped observation.

Excess of operations over persons in Re-vaccinations.

Thus, out of 81,415 re-vaccinations, success was attained in 60,847, a proportion of 100 to 75·22, but 5·23 below that of the preceding year. The table given below gives the number of persons re-vaccinated for the last eight years and the percentage of success :—

Result in Re-vaccinations.

	Years ended 31st March.							
	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.
Number of persons Re-vaccinated.	30,119	21,965	18,332	26,405	60,807	1,17,714	82,993	80,893
Ditto successfully	18,950	13,038	10,362	14,894	45,618	94,468	66,770	60,847
Percentage of success	62·92	59·35	56·52	56·41	75·02	80·25	80·45	75·22

The total number of persons operated on.

11. The total number of persons operated on in the year under report was 750,948. This is 64,229 less than in 1876-77, the percentage of decrease on the whole being 7·88. The decrease was for the most part confined to the Northern and the Southern Deccan and the Konkan Registration Districts and to the Bombay Army. Causes of this decrease have been given in full in speaking of primary vaccinations.

Excess of operations over the total number of persons operated on.

12. There were 4,590 persons on the whole operated on more than once; in 34,316, the result was unsuccessful, and 29,285 persons escaped observation.

Result in the total number of persons operated on.

The numbers successfully operated on were 691,437; and this gives a percentage of 92·08 against 93·83 in the previous year.

Primary vaccinations, Re-vaccinations and total operations by Districts and Circles.

13. The subjoined statement for 1877-78 shows the number of persons primarily vaccinated, the number re-vaccinated, and the total of persons operated on, as compared with similar numbers for 1876-77, and it also shows the percentages of increase and decrease:—

Districts and Circles.	Persons Primarily Vaccinated.				Persons Re-vaccinated.				Total number of persons operated on.			
	1877-78.	1876-77.	Increase.	Decrease.	1877-78.	1876-77.	Increase	Decrease	1877-78.	1876-77.	Increase	Decrease.
Northern Deccan Registration District	90,670	132,627	..	41,957 31·64	1,279	1,719	..	440 25·60	91,949	134,346	..	42,397 31·56
Southern Deccan Registration District	108,054	146,340	..	38,286 26·16	2,648	2,525	123 4·87	..	110,702	148,865	...	38,163 25·64
Konkan Registration District	71,621	79,866	..	8,245 10·32	8,278	4,951	3,327 67·20	..	79,899	84,817	...	4,918 57·98
Presidency Circle	11,743	16,075	..	4,332 26·95	3,243	3,440	..	197 5·73	14,986	19,515	...	4,529 23·21
Eastern Guzerat Registration District	119,625	117,389	2,236 1·90	..	4,578	4,296	282 6·56	..	124,203	121,685	2,518 2·01	..
Western Guzerat Circle	98,829	98,998	..	169 0·17	3,842	1,724	2,118 122·85	..	102,671	100,722	1,949 1·94	..
Sind Registration District	78,008	70,166	7,842 11·18	..	55,452	61,165	..	5,713 9·34	133,460	131,331	2,129 1·62	...
Baroda	71,646	53,922	17,724 32·87	..	88	232	..	144 62·07	71,734	54,154	17,580 32·46	..
Cutch	13,690	9,157	4,533 49·50	..	57	43	14 32·56	..	13,747	9,200	4,547 49·42	..
Aden	653	638	15 2·35	..	6	15	..	9 60·00	659	653	6 0·92	..
British Army	1,313	1,973	..	660 33·45	..	..	..	..	1,313	1,973	...	660 33·45
Native Army	4,203	5,033	..	830 16·49	1,422	2,883	..	1,461 50·68	5,625	7,916	...	2,291 28·94
Total	670,055	732,184	32,350 4·42	94,479 12·90	80,893	82,993	5,864 7·07	7,964 9·60	750,948	816,177	28,729 3·52	92,958 11·40

Primary vaccinations. Increase and decrease by Districts and Circles.

14. From this it will be seen that there was an increase of 32,350 in primary vaccinations in the Eastern Guzerat, Sind, Baroda, Cutch Districts and in Aden; but the decrease in the Northern and Southern Deccan, the Konkan, the Presidency and Western Guzerat Circles and the Bombay Army (for which full explanation has already been given) is nearly three times as great. The largest decrease was in the British Army and the Northern Deccan Registration District, and the largest increase was in the Cutch and Baroda States. The increase in these two States and in Sind is due to the increased number of vaccinators. The net decrease in all Districts and Circles in primary vaccinations is 62,129, or 8·48 per cent.

Re-vaccinations. Increase and Decrease by Districts and Circles.

15. In re-vaccinations an increase of 5,864 persons gives a percentage of 7·07, but there was a decrease of 7,964, or 9·60 per cent. The net decrease was 2,100, or 2·53 per cent. The greatest increase was in the Western Guzerat, Konkan, and Cutch Circles, and it is due to the increased exertions of the working staff. There was a slight increase in the Eastern Guzerat and Southern Deccan Registration Districts. The decrease in other Districts is in the following order :—Baroda, Aden, Native Army, Northern Deccan and Sind, and in the Presidency Circle where it was only 5·73 per cent.

Total operations. Increase and Decrease by Districts and Circles.

16. The total increase in the number of persons primarily vaccinated and re-vaccinated was 28,729 in the Guzerat and Sind Divisions, and Aden, and the total decrease was 92,958 in the Deccan and Konkan Divisions and in the Bombay Army. The percentages of increase and decrease are 3·52 and 11·40. The net decrease is 64,229, or 9·88 per cent. As regards decrease, the Districts and Circles are in the following sequence :—the Konkan, British Army, Northern Deccan, Native Army, Southern Deccan, and the Presidency Circle, where it was 23·21 per cent. The largest increase was in the Cutch and Baroda States. The figures for the Eastern and Western Guzerat, and Sind Districts and Aden show a slight increase over those for 1876-77, giving the percentages of 2·01, 1·94, 1·62, and 0·92, respectively, and for the Cutch and Baroda States there were 49·42 and 32·46.

Primary Vaccinations. Rate per mille of population. Protection by Districts and Circles.

17. The number of persons primarily vaccinated successfully out of every 1,000 of population (by Districts and Circles) is seen in the following statement :—

Districts and Circles.	Total number of persons primarily vaccinated successfully.	Population of Registration Districts and Circles according to the Census of 1872.	Number of Primary successful vaccinations per 1,000 of population.
Native Army	3,920	22,561	173·75
British Army	1,313	10,061	130·50
Western Guzerat Circle	91,088	2,815,215	32·36
Sind Registration District	74,876	2,322,765	32·24
Baroda	64,329	2,000,225	32·16
Aden	567	19,289	29·39
Eastern Guzerat Registration District	116,308	3,977,490	29·24
Cutch	12,645	4,87,305	25·95
Konkan Registration District	68,219	2,915,587	23·40
Northern Deccan Registration District	87,188	4,296,187	20·29
Southern Deccan Registration District	99,918	5,554,665	18·00
Presidency Circle...	10,219	6,44,405	15·86
Total ...	630,590	25,065,755	25·16
In British Territory	391,796	16,246,671	24·12
In Native States	238,794	8,819,084	27·08

Thus, out of 25,065,755 persons, 630,590 were protected by primary vaccinations, that is to say, 25·14 out of every 1,000 were primarily vaccinated with success. This is 1·56 below the ratio of the preceding year.

In British territory 24·12 per mille of population are protected, the decrease being 3·24. In Native States the ratio is 27·08 per mille, the increase being 1·55.

Result in primary vaccinations, re-vaccinations and total operations by Districts and Circles.

18. The following table gives the result of primary vaccinations, re-vaccinations, and the total operations by Districts and Circles, as contrasted with the same in 1876-77. The figures for the British Army cannot be supplied, because their returns merely give the number of successful cases. They are given in the returns from the Native Army, and it would be as well to have similar returns for British troops.

Districts and Circles.	Years.	Result of Primary Operations.					Result of Re-vaccinations.					Result of Total Operations.				
		Successful.	Unsuccessful.	Unknown.	Total.	Excess of Operations.	Successful.	Unsuccessful.	Unknown.	Total.	Excess of Operations.	Successful.	Unsuccessful.	Unknown.	Total.	Excess of Operations.
Northern Deccan Registration District ..	1877-78	85,055	1,963	1,810	88,828	548	783	340	66	1,189	2	85,838	2,303	1,876	90,717	550
	1876-77	124,375	2,324	1,998	128,697	758	1,089	464	95	1,648	3	125,464	2,788	2,093	130,345	761
Southern Deccan Registration District ..	1877-78	98,005	2,692	5,614	106,311	474	1,377	162	325	1,864	5	99,382	2,854	5,939	108,175	479
	1876-77	137,282	2,812	4,038	144,132	700	1,261	593	211	2,065	3	138,543	3,405	4,249	146,197	703
Konkan Registration District	1877-78	66,046	2,424	1,048	69,518	426	4,435	3,047	321	7,803	..	70,481	5,471	1,369	77,321	426
	1876-77	73,362	3,331	724	77,417	655	2,925	1,364	151	4,440	2	76,287	4,695	875	81,857	657
Presidency Circle ..	1877-78	10,219	895	1,061	12,175	432	1,643	941	688	3,272	29	11,862	1,836	1,749	15,447	461
	1876-77	14,932	906	481	16,319	244	2,147	1,030	276	3,453	13	17,079	1,936	757	19,772	257
Eastern Guzerat Registration District ..	1877-78	111,558	2,461	1,064	115,083	653	2,788	1,236	319	4,343	13	114,346	3,697	1,383	116,426	666
	1876-77	109,031	1,964	1,221	112,216	565	2,953	833	316	4,102	3	111,984	2,797	1,537	116,318	568
Western Guzerat Circle	1877-78	89,566	3,907	3,850	97,323	228	2,638	680	336	3,654	8	92,204	4,587	4,186	100,977	236
	1876-77	90,168	3,760	3,440	97,368	304	1,012	560	88	1,660	4	91,180	4,320	3,528	99,028	308
Sind Registration District	1877-78	72,421	817	2,194	75,432	293	44,231	5,075	4,901	54,207	305	116,652	5,892	7,095	129,639	598
	1876-77	66,054	626	2,066	68,746	204	51,146	5,048	3,425	59,619	138	117,200	5,674	5,491	128,365	342
Baroda Circle	1877-78	61,371	4,438	3,135	68,944	565	51	29	3	83	1	61,422	4,467	3,138	69,027	566
	1876-77	48,383	3,511	1,981	54,375	453	134	68	31	233	1	49,017	3,579	2,012	54,608	454
Cutch Circle	1877-78	12,645	588	457	13,690	..	40	12	5	57	..	12,685	600	462	13,747	..
	1876-77	8,458	467	232	9,157	..	29	13	1	43	..	8,487	480	233	9,200	..
Aden	1877-78	567	26	60	653	..	5	1	..	6	..	572	27	60	659	..
	1876-77	485	74	83	642	4	12	1	2	15	..	497	75	85	657	4
Native Army ..	1877-78	3,920	460	13	4,393	190	1,104	451	2	1,557	135	5,024	911	15	5,950	325
	1876-77	4,659	518	37	5,214	181	2,211	734	14	2,959	76	6,870	1,252	51	8,173	257
Dispensaries	1877-78	17,904	1,531	1,025	20,460	259	1,752	640	988	3,380	24	19,656	2,171	2,013	23,840	283
	1876-77	18,486	1,030	631	20,147	151	1,851	783	380	3,014	15	20,337	1,813	1,011	23,161	166
Total for the Bombay Presidency ..	1877-78	629,277	22,202	21,331	672,810	4,068	60,847	12,614	7,954	81,415	522	690,124	34,816	29,285	754,225	4,590
	1876-77	696,175	21,323	16,932	734,430	4,219	66,770	11,491	4,990	83,251	258	762,945	32,814	21,922	817,681	4,477

Excluding the successful cases amongst British Troops we get for primary vaccinations 94·10 per cent. successful, 2·71 unsuccessful, and 3·19 unknown, against 95·34, 2·34 and 2·32 per cent. in the preceding year. The result in revaccinations is 75·22 per cent. as successful, 14·95 as unsuccessful, and 9·83 as unknown, while in 1876-77 it was 80·45, 13·54, and 6·01 per cent. Taking all the operations together we have the following percentages for successful, unsuccesful, and unknown cases: 92·06, 4·03 and 3·91; in the previous year they were 93·82, 3·48 and 2·70. It is assumed that out of one hundred *persons* operated on (not *operations*) so many were successfully or unsuccessfully vaccinated and so many escaped observation. To get the percentages of persons successfully vaccinated, or of those in whom the result could not be ascertained, it is necessary to deduct the excess of operations from the total, and to divide by the remainder one hundred times the successful cases, or the unknown cases. As regards the unsuccessful cases, it is also necessary to deduct from them the excess of operations, because when first operations were unsuccessful the persons were again vaccinated, and the results were then returned as "successful" or "unknown." In order then to get the percentages of those unsuccessfully vaccinated the excess of operations should be deducted from the total of unsuccessful cases, and the remainder multiplied by 100, and divided by the total number of persons operated on. This method of calculation has been adopted since the introduction of the new annual forms in which the results are shown by *persons* and not by *operations*.

Method of calculating the percentages of the results.

19. The following table indicates by Districts and Circles the percentages of success in primary vaccinations and re-vaccinations as compared with similar percentages for the previous year, excluding then the successful cases returned amongst British Troops. The average percentages of success under primary vaccinations and re-vaccinations are for the whole Presidency 94·10 and 75·22. These numbers are respectively 1·25 and 5·23 lower than those in 1876-77.

Percentages of success reviewed, by Districts and Circles.

No.	Districts and Circles.	Result in Primary Vaccinations.		Result in Re-vaccinations.	
		1877-78.	1876-77.	1877-78.	1876-77.
1	Eastern Guzerat Registration District ...	97·49	97·67	64·39	72·04
2	Sind Registration District	96·38	96·38	82·06	85·99
3	Northern Deccan Registration District ...	96·35	97·21	65·96	66·20
4	Konkan do. do.	95·59	95·57	56·84	65·91
5	Native Army	93·27	92·57	77·64	76·69
6	Southern Deccan Registration District ...	92·59	95·71	73·87	61·15
7	Cutch Circle	92·37	92·36	70·18	67·44
8	Western Guzerat Circle	92·24	92·89	72·35	61·12
9	Baroda Circle	89·75	90·66	62·19	57·76
10	Dispensaries	88·62	92·46	52·20	61·72
11	Presidency Circle	87·02	92·89	50·66	62·41
12	Aden	86·83	76·02	83·33	80·00
	Average for the whole Presidency ...	94·10	95·35	75·22	80·45

From this it will be seen that, taking the primary vaccinations into consideration, the Eastern Guzerat District has attained the first place. The Northern Deccan District now occupies the 3rd place instead of the 2nd, and the Southern Deccan the 6th instead of the 4th. The Western Guzerat Circle now holds the 8th place. The Dispensaries have the 10th place instead of the 9th, and the Presidency Circle has gone from the 6th to the 11th place. This year the "unknown" cases out-number the "unsuccessful," and this is owing to the public in general not having returned to the Public Vaccine Stations, on the 8th day after the operation to show the result as required by the Act. Though Aden holds the last place this year as it did last year, it has gained 10·71 per cent. In the Southern Deccan District the diminution of the percentage of success to the extent of 3·12 is owing to the "unknown" cases having been more than double the number of "unsuccessful." This is also observed in Sind, but notwithstanding this, the percentage of success is the same this year as in 1876-77, because there are more "successful" cases.

Work performed by establishments reviewed.

20. The undermentioned tabular statement shows the work performed by each establishment during 1877-78 and 1876-77 and the percentages of increase and decrease :—

Establishment.	Persons Primarily Vaccinated.				Persons Re-vaccinated.				Total Number of Persons operated on.			
	1877-78.	1876-77.	Increase	Decrease	1877-78.	1876-77.	Increase	Decrease	1877-78.	1876-77.	Increase	Decrease
2 Government Vaccinators ..	5,472	5,518	..	46 0·83	70	211	..	141 66·82	5,542	5,729	..	187 3·26
43 Municipal do. ..	50,250	61,671	..	11,421 18·52	9,948	10,603	..	655 6·18	60,198	72,274	..	12,076 16·71
1 Cantonment do. ..	845	827	18 2·18	..	28	159	..	131 82·39	873	986	..	113 11·46
219 Local Fund do. ..	340,993	394,775	..	53,777 13·62	58,841	61,825	..	2,984 4·83	399,839	456,600	..	56,761 12·43
143 Native States do. ..	246,773	242,391	4,382 18·08	..	7,228	4,313	2,915 6·76	..	254,001	246,704	7,297 2·96	..
132 Dispensaries	20,301	19,996	205 1·03	..	3,356	2,999	357 11·90	..	23,557	22,995	562 2·44	..
British Army	1,313	1,973	..	660 33·45	..	..	..	..	1,313	1,973	..	660 33·45
Native Army	4,203	5,033	..	830 16·49	1,422	2,883	..	1,461 50·68	5,625	7,916	..	2,291 28·94
Total ..	670,055	732,184	4,605 0·63	66,734 9·11	80,893	82,993	3,272 3·94	5,372 6·47	750,948	815,177	7,859 0·96	72,088 8·84

The only establishments that show an increase during the year under report are those in the Native States of Cutch and Baroda. The increase of work in Dispensaries is due to the introduction of vaccination in the Dispensaries opened in the Baroda State. The decrease of work among Government Vaccinators is due to the decrease in the station of Rájkot where small-pox was very rife. The de-

crease in the work of other establishments is attributable to the small amount performed by the Local Fund Establishments in the Northern and Southern Deccan and Konkan, and by the Municipal Vaccinators in all the districts, except in the Konkan and Aden. In a general way the decrease may be set down to the unsettled state of the Districts consequent upon the famine, and to the prevalence of fever, cholera, and small-pox. The causes of the decrease amongst British and Native Troops have already been given elsewhere. The percentages of increase in the primary vaccinations, re-vaccinations, and total operations by all the establishments together are respectively 0·63, 3·94, and 0·96; those of decrease being 9·11, 6·47, and 8·84; that is to say, for every hundred persons primarily vaccinated, re-vaccinated, or operated on during 1876-77, there were this year 92·89 persons primarily vaccinated, 93·53 re-vaccinated, and 91·16 operated on by all the vaccinators, except those employed in Native States and Dispensaries. The Native States' Vaccinators and the Dispensary Officers have operated on 100·96 persons this year for every 100 in the preceding year.

Result in primary vaccinations, re-vaccinations, and total operations by establishments.

21. The subjoined table shows the result of primary vaccinations, re-vaccinations, and total operations performed by each establishment. It distinguishes the "successful," "unsuccessful," and "unknown" cases from the total operations, and the deduction of the "excess of operations" (which are also given) will give the number of persons operated on :—

Establishment.	Years.	Result of Primary Operations.					Result of Re-vaccinations.					Result of Total Operations.				
		Successful.	Unsuccessful.	Unknown.	Total.	Excess of Operations.	Successful.	Unsuccessful.	Unknown.	Total.	Excess of Operations.	Successful.	Unsuccessful.	Unknown.	Total	Excess of Operations.
2 Government Vaccinators ..	1877-78	5,311	82	79	5,472	..	58	12	..	70	..	5,369	94	79	5,542	..
	1876-77	5,346	102	70	5,518	..	115	83	13	211	..	5,461	185	83	5,729	..
43 Municipal Vaccinators ..	1877-78	46,335	1,893	2,574	50,802	552	6,645	2,065	1,274	9,984	36	52,980	3,958	3,848	60,786	588
	1876-77	58,300	1,984	1,844	62,128	457	7,504	2,211	955	10,670	67	65,804	4,195	2,799	72,798	524
1 Cantonment Vaccinator ..	1877-78	804	24	34	862	17	5	20	3	28	..	809	44	37	890	17
	1876-77	771	38	36	845	18	81	55	24	160	1	852	93	60	1,005	19
219 Local Fund Vaccinators ..	1877-78	326,670	7,765	8,451	342,886	1,888	46,944	7,055	5,156	59,155	314	373,614	14,820	13,607	402,041	2,202
	1876-77	382,211	8,120	6,697	397,028	2,253	52,305	6,426	3,187	61,918	93	434,516	14,546	9,884	458,946	2,346
143 Native State Vaccinators ..	1877-78	228,333	10,447	9,155	247,935	1,162	4,339	2,371	531	7,241	13	232,672	12,818	9,686	255,176	1,175
	1876-77	226,402	9,531	7,617	243,550	1,159	2,703	1,199	417	4,319	6	229,105	10,730	8,034	247,869	1,165
Native Army ..	1877-78	3,920	460	13	4,393	190	1,104	451	2	1,557	135	5,024	911	15	5,950	325
	1876-77	4,659	518	37	5,214	181	2,211	734	14	2,959	76	6,870	1,252	51	8,173	257
132 Dispensaries ..	1877-78	17,904	1,531	1,025	20,460	259	1,752	640	988	3,380	24	19,656	2,171	2,013	23,840	283
	1876-77	18,486	1,030	631	20,147	151	1,851	783	380	3,014	15	20,337	1,813	1,011	23,161	166
Total for the Bombay Presidency ..	1877-78	629,277	22,202	21,331	672,810	4,068	60,847	12,614	7,954	81,415	522	690,124	34,816	29,285	754,225	4,590
	1876-77	696,175	21,323	16,932	734,430	4,219	66,770	11,491	4,990	83,251	258	762,945	32,814	21,922	817,681	4,477

The very large number of "unknown" cases has lowered the percentage of successful cases on the total.

Percentages of success by establishments in the primary and re-vaccinations.

22. The percentage of success attained by each establishment, as contrasted with the previous year is here given—

Establishments.		Government.	Municipal.	Cantonment.	Local Funds.	Native States.	Dispensaries.	Native Army.	For the whole Presidency.
In Primary Vaccinations.									
Percentage of Success	1877-78...	97·06	92·21	95·14	95·79	92·52	88·62	93·27	94·10
	1876-77...	96·88	94·53	93·23	96·82	93·40	92·46	92·57	95·35
In Re-vaccinations.									
Percentage of Success	1877-78...	82·85	66·79	17·86	79·78	60·03	52·20	77·64	75·22
	1876-77...	54·50	70·77	50·94	84·60	62·67	61·72	76·69	80·45

Under primary vaccinations the percentages of success attained by the Government and Cantonment Vaccinators and for the Native Army are higher than those in 1876-77 : thus showing that though the amount of work was less by them it was more carefully performed. The lower percentages of success in the Native States and Dispensaries are owing to there having been more "unknown" cases

23. As regards sexes they are not returned according to particular ages. There were 399,205 males and 350,430 females vaccinated, or to be more particular, 350,715 males and 318,027 females were primarily vaccinated and 48,490 males and 32,403 females

Sex.

Districts and Circles.	Persons operated on.	1877-78. Males.	Females	Percentages of Males.	Percentages of Females.	Excess of Males.	1876-77. Males.	Females	Percentages of Males.	Percentages of Females.	Excess of Males.
Northern Deccan Registration District	Primary ..	45,353	42,927	51·37	48·63	2·74	65,168	62,776	50·93	49·07	1·86
	Re-vaccinations..	838	349	70·60	29 40	41·20	1,257	388	76·41	23·59	52·82
	Total ..	46,191	43,276	51·63	48·37	3·26	66,420	63,164	51·26	48·74	2·52
Southern Deccan Registration District	Primary ..	54,853	50,984	51·83	48·17	3·66	73,684	69,748	51·37	48·63	2·74
	Re-vaccinations ..	1,269	590	68·26	31·74	36·52	1,312	750	63·63	36·37	27·26
	Total ..	56,122	51,574	52·11	47·89	4·22	74,996	70,498	51·55	48·45	3·10
Konkan Registration District ..	Primary ..	35,617	33,475	51·55	48·45	3·10	40,700	36,062	53·02	46·98	6·04
	Re-vaccinations ..	4,922	2,881	63·08	36·92	26·16	2,602	1,836	58·63	41·37	17·26
	Total ..	40,539	36,356	52·72	47·28	5·44	43,302	37,898	53·33	46·67	6·66
Presidency Circle	Primary ..	6,248	5,495	53·21	46·79	6·42	9,087	6,988	56·53	43·47	13·06
	Re-vaccinations ..	3,015	228	92·97	7·03	85·94	2,983	457	86·72	13·28	73·44
	Total ..	9,263	5,723	61·81	38·19	23·62	12,070	7,445	61·85	38·15	23·70
Eastern Guzerat Registration District	Primary ..	59,876	54,554	52·33	47·67	4·66	58,026	53,625	51·97	48·03	3·94
	Re-vaccinations ..	3,354	976	77·46	22·54	54·92	2,744	1,355	66·94	33·06	33·88
	Total ..	63,230	55,530	53·24	46·76	6·48	60,770	54,980	52·50	47·50	5·00
Western Guzerat Circle	Primary ..	49,362	47,413	51·26	48·74	2·52	49,653	47,411	51·15	48·85	2·30
	Re-vaccinations ..	1,995	1,471	57·56	42·44	15·12	1,062	594	64·13	35·87	28·26
	Total ..	51,357	48,884	51·46	48·52	2·96	50,715	48,005	51·37	48·63	2·74
Sind Registration District ..	Primary ..	41,585	33,554	55 34	44·66	10·68	37,589	30,953	54·84	45·16	9·68
	Re-vaccinations ..	28,680	25,222	53·21	46·79	6·42	31,520	27,961	52·99	47·01	5·98
	Total ..	70,265	58,776	54·45	45·55	8·90	69,109	58,914	53·98	46·02	7·96
Baroda Circle	Primary ..	36,841	31,538	53·88	46·12	7·76	28,921	25,001	53·63	46·37	7·26
	Re-vaccinations ..	57	25	69·51	30·49	39·02	232	..	100·00	..	100·00
	Total ..	36,898	31,563	53·90	46·10	7·80	29,153	25,001	53·83	46·17	7·66
Cutch Circle	Primary ..	6,999	6,691	51·12	48·88	2·24	4,565	4,502	49·85	50·15	..
	Re-vaccinations ..	42	15	73·70	26·30	47·40	31	12	72·09	27·91	44·18
	Total ..	7,041	6,706	51·22	48·78	2·44	4,596	4,604	49·96	50·04	..
Aden	Primary ..	427	226	65·39	34·61	30·78	414	224	64·89	35·11	29·78
	Re-vaccinations ..	6	..	100·00	..	100·00	10	5	66·67	33·33	33·34
	Total ..	433	226	65·86	34·14	31·72	424	229	64·90	35·10	29·80
Native Army	Primary ..	2,235	1,968	53·18	46·82	6·36	2,712	2,321	53·88	46·12	7·76
	Re-vaccinations. ..	1,197	225	84·18	15·82	68·36	2,427	456	84·18	15·82	68·36
	Total..	3,432	2,193	61·01	38·99	22·02	5,139	2,777	64·92	35·08	29·84
Dispensaries	Primary ..	10,999	9,202	54·45	45·55	8·90	10,661	9,335	53·32	46·68	6·64
	Re-vaccinations ..	2,935	421	87·46	12·54	74·92	2,627	372	87·60	12·40	75·20
	Total ..	13,934	9,623	59·15	40·85	18·30	13,288	9,707	57·79	42·21	15·58
Totals for the Bombay Presidency	Primary ..	350,715	318,027	52·44	47·56	4·88	381,175	349,036	52·20	47·80	4·40
	Re-vaccinations. ..	48,490	32,403	59·94	40·06	19·88	48,307	34,186	58·81	41·19	17·62
	Total ..	399,205	350,430	53·25	46·75	6·50	429,982	383,222	52·88	47·12	5·76

were re-vaccinated. Of every 100 persons primarily vaccinated, there were 52·44 males and 47·56 females, and of the re-vaccinations the proportions were 59·94 and 40·06. The disparity of sexes varies in different Districts and Circles, as will be seen from the above table. It is very high in Aden owing to there being some objection to vaccinate grown-up girls. In Sind it has risen in the case of primary vaccinations from 7·70 in 1875-76 to 10·68 in the year under report, but there is a marked difference of sexes among the re-vaccinations, so that on this point Sind forms an exception to all the Districts and Circles;

that is to say, neither males nor females in Sind seem to object to re-vaccination. In Cutch last year more females were vaccinated than males, but this year there have been more males than females, and the disparity there is the minimum of all Districts and Circles.

24. Caste. In the two following statements distinctions of "caste" and "age" are only shown for those primarily vaccinated. In the returns from British Troops castes and ages are not shown :—

Districts and Circles.		Persons Primarily Vaccinated.	Number of					Ratio per 100				
			Christians	Hindus.	Musalmans.	Parsis.	Other Castes.	Christians.	Hindus.	Musalmans.	Parsis.	Other Castes
Northern Deccan Registration District	1877-78.	88,280	253	76,660	4,230	39	7,098	0·29	86·84	4·79	0·04	8·04
	1876-77.	127,939	399	108,721	7,082	47	11,690	0·31	84·98	5·53	0·04	9·14
Southern Deccan Registration District	1877-78	105,837	281	90,914	7,747	5	6,890	0·27	85·90	7·32	..	6·51
	1876-77.	143,432	332	122,601	10,813	8	9,678	0·23	85·48	7·54	..	6·71
Konkan Registration District	1877-78.	69,092	1,071	61,712	2,329	54	3,926	1·55	89·32	3·37	0·08	5·68
	1876-77.	76,762	1,236	68,236	2,915	73	4,302	1·61	88·89	3·80	0·10	5·60
Presidency Circle	1877-78.	11,743	959	7,341	1,455	993	995	8·17	62·51	12·40	8·46	8·46
	1876-77.	16,075	847	11,045	2,158	715	1,310	5·27	68·71	13·42	4·45	8·15
Eastern Guzerat Registration District	1877-78.	114,430	39	97,985	8,369	238	7,299	0·03	85·63	7·75	0·21	6·38
	1876-77.	111,651	56	94,738	7,969	380	8,508	0·05	84·85	7·14	0·34	7·62
Western Guzerat Circle	1877-78.	97,095	36	81,202	9,942	55	5,860	0·04	83·63	10·24	0.05	6·04
	1876-77.	97,064	10	79,774	10.549	20	6,711	0·01	82·19	10 87	0·02	6·91
Sind Registration District	1877-78.	75,139	102	11,677	56,498	7	6,855	0·14	15·54	75·19	0·01	9·12
	1876-77.	68,542	179	10,694	53,504	37	4,128	0·26	15·60	78·06	0·06	6·02
Baroda Circle	1877-78.	68,379	14	59,611	4,859	52	3,843	0·02	87·18	7·11	0·07	5·62
	1876-77.	..	..	..	..	..	..	..	..	..	..	..
Cutch	1877-78.	13,690	..	10,779	2,911	..	..	..	78·74	21·26	..	..
	1876-77.	..	..	..	..	..	..	..	..	..	..	..
Aden	1877-78.	653	15	8	544	21	65	2·30	1·22	83·31	3·22	9·95
	1876-77.	688	4	15	489	3	127	0·63	2·35	76·65	0·47	19·90
Native Army	1877-78.	4,203	118	2,903	969	25	168	2·81	69·07	23·53	0·59	4·00
	1876-77.	5,033	135	3,443	1,186	27	242	2·68	68·41	23·56	0·54	4·81
Dispensaries	1877-78.	20,201	360	14,958	4,299	127	467	1·73	74·05	21·28	0·63	2·31
	1876-77.	19,996	358	14,745	4,443	124	326	1·79	73·74	22·22	0·62	1·63
Total	1877-78.	668,742	3,238	515,750	104,672	1,616	43,466	0·49	77·12	15·65	0·24	6·50
	1876-77.	667,132	3,556	514,012	101,108	1,434	47,022	0·53	77·05	15·16	0·21	7·05

As may be seen from the first statement, 3,238 Christians, 515,750 Hindus, 104,672 Musalmans, 1,616 Parsis, and 43,466 persons of Other Castes were primarily vaccinated. Out of every 100 persons there were primarily vaccinated 0·49 Christians, 77·12 Hindus, 15·65 Musalmans, 0·24 Parsis, and 6·50 persons of Other Castes. It will be noted how low are the figures for the Parsis.

25. Age. The next statement gives for Circles, &c., the number of infants, children and others above the age of 6 years, primarily vaccinated and their percentages, and they are contrasted with those for 1876-77 :—

Districts and Circles.	Year.	Persons Primarily Vaccinated Successfully.				Ratio per 100 of Successful Persons.		
		Total Number.	Under 1 year.	Between 1 and 6 years.	All other Ages.	Under 1 year.	Between 1 and 6 years.	All other Ages.
Northern Deccan Registration District	1877-78	85,055	47,563	34,544	2,948	55·92	40·61	3·47
	1876-77	124,375	54,278	66,296	3,801	43·64	53·30	3·06
Southern Deccan Registration District	1877-78	98,005	44,729	48,779	4,497	45·64	49·77	4·59
	1876-77	137,282	51,199	67,211	18,872	37·29	48·96	13·75
Konkan Registration District	1877-78	66,046	26,704	34,101	5,241	40·13	51·63	8·24
	1876-77	73,362	28,682	39,764	4,916	39·10	54·20	6·90
Presidency Circle	1877-78	10,219	7,212	2,774	233	70·57	27·15	2·28
	1876-77	14,932	9,840	4,735	357	65·90	31·71	2·39
Eastern Guzerat Registration District	1877-78	111,558	60,570	45,717	5,271	54·29	40·98	4·73
	1876-77	109,031	56,833	47,014	5,184	52·13	43·12	4·75
Western Guzerat Circle	1877-78	89,566	46,282	41.360	1,924	51·67	46·18	2·15
	1876-77	90,168	41,164	46,930	2,614	45·65	51·45	2·90
Sind Registration District	1877-78	72,421	40,424	28,617	3,380	55·82	39·51	4·67
	1876-77	66,054	37,921	25,353	2,780	57·41	38·38	4·21
Baroda Circle	1877-78	61,371	25,401	33,278	2,692	41·39	54·22	4·39
	1876-77	48,883	16,852	32,031	....	34·47	65·53	..
Cutch Circle	1877-78	12,645	5,005	7,513	127	39·58	59·41	1·01
	1876-77	8,458	3,371	4,934	153	39·86	58·34	1·80
Aden	1877-78	567	104	336	127	18·34	59·26	22·40
	1876-77	485	89	396	....	18·35	81·65	..
Native Army	1877-78	3,920	3,255	650	15	83·04	16·58	0·38
	1876-77	....	....	....	....	....	....	....
Dispensaries	1877-78	17,904	10,733	6,568	603	59·95	36·68	3·37
	1876-77	18,486	8,602	7,945	1,939	46·53	42·98	10·40
Total for the Bombay Presidency	1877-78	629,277	317.982	284,237	27,058	50·53	45·17	4·30
	1876-77	691,516	308,831	342,069	40,616	44·66	49·47	5·87

There were successfully and primarily vaccinated 317,982 infants unable to walk, 284,237 children between one and six years of age, and 27,058 persons above six years of age.

Successful vaccination of infants.

Considerable progress is observable in the successful vaccinations of infants, the percentage being 50·53 infants, 45·17 children between the ages of 1 to 6, and 4·30 persons of other ages. The highest percentage of success among infants was in the Native Army and the Presidency Circle in which it was higher than in 1876-77. The Dispensaries, the Northern Deccan, the Sind, the Eastern and Western Guzerat come next. The progress for the Dispensaries and the Northern Deccan Registration District is satisfactory, when compared with that for the preceding year, the percentages for Dispensaries having risen from 46·53 to 59·95, and in the Northern Deccan from 43·64 to 55·92. Aden is the lowest of all in this respect. Its percentage is only 18·34 just ·01 less than for the previous year. Though the returns for the year show less work, the progress in affording protection to infants is on the whole satisfactory.

English Lymph.

26. Ninety tubes of English lymph were received from England. A first lot of 45 in November 1877 and a second in January 1878. The quality of the last was better than that of the first.

Supplies received in.	No. on the Packet.	Districts and Circles.	Number of: Tubes tested.	Children operated on.	Insertions.	Resulting Vesicles	Character of Vesicles.	Remarks.
November 1877.	112	Northern Deccan Registration District.	7	7	31	13	Excellent	Failed in two children.
	119	Southern Deccan Registration District.	6	8	38	13	Good.	
	114	Konkan Registration District.	4	4	27	1	Fair	One child was operated on with the lymph from this vesicle.
		Presidency Circle	5	5	25	1	Very Good ..	Only one puncture took in one child, but the vesicle was of a good Jennerian type.
	172	Eastern Guzerat Registration District.	5	5	23	9	Middling	On the whole the result of the use of the lymph was successful.
		Western Guzerat Circle ..	4	4	24	1	Small	The vesicle, small, had been broken by the child and the lymph lost.
	156	Sind Registration District ..	6	5	36	..	....	
	172	Baroda	5	5	30	15	Small but characteristic.	
	161	Cutch	3	3	12	..	....	
		Total ..	45	46	246	53		
January 1878.	290	Northern Deccan Registration District.	5	5	21	12	Good.	
	226	Southern Deccan Registration District.	5	5	27	..	....	
	92	Konkan Registration District.	5	2	10	3	Good	The result of one child could not be ascertained.
	225	Presidency Circle	5	2	12	3	Good	Of the two children operated upon, in one the operation failed completely.
	109	Eastern Guzerat Registration District.	5	5	23	5	Middling	Of the five children vaccinated two were entirely unsuccessful.
	277	Western Guzerat Circle ..	5	3	18	12	Small but well formed.	
	216	Sind Registration District..	5	5	30	4	Good.	
	125	Baroda	5	5	29	4	Small.	
	275	Cutch	5	5	20	20	Very Good.	
		Total ..	45	37	190	63		
		Grand Total ..	90	83	436	116		

Quality of lymph in use.

27. In the Konkan Registration District the quality of the lymph used was reported to be good in the Ratnágiri and Colába Collectorates. In Tanna and Kanara it was less satisfactory. In Cutch, in a few cases, there was deterioration of the lymph, and it was renewed. In Adén the supply failed from August to November 1877, and a fresh supply was sent from Bombay. Speaking generally the lymph was good in all the Districts and Circles.

Lymph supplied.

28. During the year lymph was supplied to the 2nd Regiment M. L. C. Kamptee, 56th Regiment Aden, I. G. Steamer "Comet," Bagdad, Bassadore Dispensary, and the Governor General's Agency, Beluchistan. It was also sent to the Staff Surgeons, Bhuj and Mhow; Residency Surgeon, Indore, and the Civil Surgeon, Aden. From June to

August 1877 the Southern Deccan Registration District obtained lymph from Khandesh, Ahmednagar, and Poona.

Animal vaccination.

29. Animal vaccination was carried on in the City of Bombay, in Poona and in Surat. In Poona there was a failure in three out of 60 heifers operated on, and the total cost under this head was Rs. 199-10-0. In Surat 35 heifers were used, and the cost was Rs. 58-10-6, thus made up—

Paid to owners for loan of heifers	Rs.	26	4 0
Feeding of heifers	„	27	6 6
Sundries	„	5	0 0
Total ...Rs.		58	10 6

Out of 35 heifers inoculated with vaccine virus, success was attained in 32. 273 persons were primarily vaccinated and 238 were re-vaccinated from heifer lymph. Out of the primary vaccinations 257 were successful, 12 failed, and 4 escaped observation. Re-vaccinations from cow lymph were performed on the prisoners in the Surat Jail and eight European inhabitants in the city, and primary vaccinations were performed on the native residents. The work was continued from the rains of 1876 to 13th February 1878, and as no heifers could be procured for inoculation, it had to be discontinued after that date.

Animal vaccination in Bombay is said to have been satisfactorily performed. Of 324 heifers 320 were available, and in 4 instances it failed. The next table shows the number of heifers inoculated in each month and the result of the operations :—

Months.	April 1877.	May.	June.	July.	August.	September.	October.	November.	December.	January 1878.	February.	March.	Total.
Number of heifers inoculated ...	27	27	16	23	20	30	30	30	31	31	28	31	324
Operations successful in ...	27	26	15	22	20	30	29	30	31	31	28	31	320
Operations failed in	...	1	1	1	...	...	1	...	...	..	...	...	4

The supply of cow lymph received from Dr. Warlomont of Belgium proved as inert this year as it was last year, but as the lymph obtained from local heifer inoculation was of " excellent quality," this failure was of little consequence in the Presidency Circle. The cost on account of heifers was Rs. 2,592-14-0, against 2,677-4-5 in the previous year. All the operations in Bombay are performed with animal lymph, and since the introduction of the Compulsory Vaccination Act human lymph is no longer used.

Expenditure.

30. The following table shows the total cost of the operative agency borne by several funds both for this year and for 1876-77 :—

Establishment.	Total Expenditure.		Compared with the preceding year.
	1877-78.	1876-77.	Increase.
	Rs. a. p.	Rs. a. p.	Rs. a. p.
Provincial	1,04,948 12 8	83,608 4 0	21,340 8 8
Municipal	17,087 8 11	15,931 15 8	1,155 9 3
Cantonment	337 14 5	286 8 0	51 6 5
Local Funds	66,171 11 8	63,296 1 10	2,875 9 10
Native States	47,823 0 5	42,061 5 9	5,761 10 8
	2,36,369 0 1	2,05,184 3 3	31,184 12 10

It will be seen that under all heads there is increased expenditure. The most is under "Provincial Services," which is owing to the supervising and administrative staff (as constituted since November 1876), having been paid for the entire year. The same remark applies to the increase on account of Cantonment Funds. The increase under Local Funds and Native States is owing to the increased number of vaccinators. The increase under Municipalities is due to the entertainment for the whole year of an Assistant Superintendent and two clerks in the Presidency Circle and of a vaccinator in the town of Kaládgi.

Increase of Expenditure.

31. In the table below the cost of each successful case after deducting the pay of the Deputy Sanitary Commissioners and Superintendents of Vaccination is shown and compared with the same in 1876-77 :—

Cost of each successful case after deducting the pay of the Supervising Officers.

Name of Districts and Circles.	Deputy Sanitary Commissioners and Superintendents.		Successfully Vaccinated and Re-vaccinated.	Total Cost excluding pay of Deputy Sanitary Commissioners and Superintendents.	Average Cost of each successful Vaccination.	Number of Vaccinators.
				Rs. a. p.	As. p.	
Northern Deccan Registration District	Dr. W. Nolan	1877-78.	85,838	32,175 0 10	5 11	70
		1876-77.	125.464	28,030 12 0	3 7	66
Southern Deccan Registration District	Drs. R. M. Wall and G. Bainbridge	1877-78.	99,382	35,512 9 1	5 8	83
		1876-77.	138.543	30,177 15 1	3 6	82
Konkan Registration District	Drs. J. McAlister, W. Niven, Ross, W. A. Barren, and C. W. MacRury	1877-78.	70,481	21,008 12 7	4 9	45
		1876-77.	76,287	20,866 5 5	4 5	45
Presidency Circle	Dr. Ananta Chandroba	1877-78.	11,862	8,340 2 2	11 2	9
		1876-77.	17,079	7,463 13 6	7 0	16
Eastern Guzerat Registration District	Dr. M. B. Colah	1877-78.	114,346	26,617 13 2	3 8	62
		1876-77.	111,984	25,146 10 2	3 7	61
Western Guzerat Circle	Dr. J. T. Welsh	1877-78.	92,204	21,450 14 0	3 9	43
		1876-77	91,180	21,128 2 7	3 8	42
Sind Registration District	Drs. A. J. Leggatt and N. Hopkins	1877-78.	116,652	28,251 0 9	3 10	50
		1876-77.	117,200	24,289 12 7	3 4	51
Baroda	Dr. T. Cody	1877-78.	61,422	11,342 1 3	2 9	31
		1876-77.	49,017	8,906 4 10	2 11	26
Cutch	Dr. Dorabji Hormusji	1877-78.	12 685	5,747 2 2	7 3	15
		1876-77.	8,487	3,624 8 2	6 10	13
Aden	Dr. Patterson	1877-78.	572	216 0 0	6 1	1
		1876-77.	497	216 0 0	6 11	1
	Total	1877-78.	665,444	190,621 8 0	4 7	409
		1876-77.	735,738	169,850 4 4	3 8	403

The cost of each successful case is, on the whole, annas 4-7, or eleven pies more than for the previous year, and this is owing to the fewer number of persons operated on by the vaccinators. The cost for each successful case is also higher in all the Districts and Circles, except in Baroda and Aden. In Baroda it is two pies less and in Aden 10 pies less than in the preceding year, owing to the increase in the number of persons vaccinated. In the Presidency Circle the cost per successful case rose from 7 annas in 1876-77 to 11 annas and 2 pies in 1877-78 ; and in the Northern and Southern Deccan Registration Districts it rose from annas 3-7 and 3-6 to annas 5-11 and 5-8 respectively.

Cost of each successful case including all charges.

32. Including all charges, the general average cost per each successful case was annas 5 and pies 8, or 1 anna and 2 pies more than in 1876-77.

Cost of each successful case by establishments.

33. The next table gives the cost for each successful case by establishments :—

	1877-78.	1876-77.
Government	As. 1 7	As. 1 6
Municipal	„ 5 1	„ 3 10
Cantonment	„ 4 2	„ 3 7
Local Fund	„ 2 10	„ 2 4
Native States	„ 3 3	„ 2 11

The increase is observed in all establishments, the greatest being in the Municipal Establishments, owing to the increased expenditure in the Presidency Circle on account of the working of the Vaccination Act.

Work of Superintendents and Deputy Sanitary Commissioners.

34. The travelling and inspections by the Deputy Sanitary Commissioners and Circle Superintendents are given below :—

Name of Districts and Circles.	Name of Deputy Sanitary Commissioners and Superintendents.		Number of Encampments.	Number of Travelling Days.	Distance travelled in Miles.	Number of Villages visited.	Number of Vaccinated Children inspected.
Northern Deccan Registration District	Dr. W. Nolan	1877-78.	66	168	5,331	117	7,111
		1876-77.	14	23	1,077	25	805
Southern Deccan Registration District	Drs. R. M. Wall and G. Bainbridge	1877-78.	78	111	1,495	87	5,274
		1876-77.	48	85	980	89	5,671
Konkan Registration District	Drs. J. McAlister, W. Niven, Ross, W. A. Barren, and C. W. MacRury	1877-78.	45	140	2,164	362	7,764
		1876-77.	60	137	1,311	189	6,439
Eastern Guzerat Registration District	Dr. M. B. Colah	1877-78.	64	176	1,959	334	11,624
		1876-77.	52	173	2,257	381	10,531
Western Guzerat Circle	Dr. J. T. Welsh	1877-78.	55	107	1,121	250	11,967
		1876-77.	71	118	1,308	243	13,996
Sind Registration District	Drs. A. J. Leggatt and N. Hopkins	1877-78.	78	93	2,410	179	3,103
		1876-77.	80	104	2,476	295	5,680
Total		1877-78.	386	795	14,480	1,269	46,843
		1876-77.	325	620	9,409	1,222	43,112

Dr. Welsh has inspected the greatest number of children this year, but 2,029 less than in 1876-77. Dr. Colah comes next, with 1,103 more. Dr. Nolan has travelled the greatest number of miles, but this is owing to his having held the Sanitary Commissionership during the months of January, February, and March 1878, in addition to his own duties, which necessitated his travelling to other districts besides his own. Dr. Colah has the greatest number of travelling days, and Dr. Leggatt the greatest number of encampments.

Number of children inspected by Deputy Sanitary Commissioners and Superintendents by calling names from Registers.

35. Out of the 46,843 children 33,267 were inspected by the Deputy Sanitary Commissioners and Superintendents of Vaccination by calling out the names of 59,307 children from the Vaccination Registers. The particulars of these inspections are tabulated below. Out of the 33,267 children present during inspection 29,371, or 88·28 per cent., were found

Districts and Circles.	Work tested by calling names from Register.									
	Number of Vaccinated Children inspected.	Present during Inspection.			Absent during Inspection.		Number of Persons whom the Vaccinator has returned as Vaccinated.			
		Successful.		Unsuccessful including Bad.	Absence accounted for	Absence unaccounted for	Successful.	Unsuccessful and Doubtful.	Unknown.	Total.
		Good.	Middling.							
Northern Deccan Registration District	1877-78 .. 5,986	5,420	269	297	9,715	..	15,133	303	265	15,701
	1876-77 .. 597	495	45	57	157	..	684	37	33	754
Southern Deccan Registration District	1877-78 .. 2,594	1,939	251	404	5,478	15	7,533	143	411	8,087
	1876-77 .. 2,755	2,434	169	152	2,932	..	5,374	159	154	5,687
Konkan Registration District	1877-78 .. 6,154	4,448	832	874	2,880	..	8,580	337	117	9,034
	1876-77 .. 4,502	3,397	576	529	2,113	..	6,421	187	12	6,620
Eastern Guzerat Registration District	1877-78 .. 11,519	3,835	6,499	1,185	3,938	..	14,652	520	255	15,457
	1876-77 .. 9,182	3,712	4,669	801	2,177	1	10,928	284	148	11,360
Western Guzerat Circle	1877-78 .. 4,188	3,396	562	330	1,969	3	5,871	248	141	6,260
	1876-77 .. 4,911	3,705	663	543	2,551	14	6,983	282	211	7,476
Sind Registration District	1877-78 .. 2,746	755	1,165	806	2,039	3	4,341	185	242	4,768
	1876-77 .. 5,610	857	3,197	1,556	4,830	..	9,561	378	501	10,440
Total	1877-78 .. 33,267	19,793	9,578	3,896	26,019	21	56,140	1,736	1,431	59,307
	1876-77 .. 27,557	14,600	9,319	3,638	14,765	15	39,951	1,327	1,059	42,337

successful and 3,896 unsuccessful. There were 26,019 children who escaped observation. Out of 59,307 children, whose names were called out from the Register, the vaccinators returned 56,140, or 94·66 per cent., as successful. The difference of 6·38 between this percentage and the percentage of success found out on inspection is safely accounted for by the large number of vaccinated children absent at the time of inspection. Dr. Colah, in charge Eastern Guzerat Registration District, has inspected the greatest number of children, and then follow Drs. McAlister and MacRury, who were in charge of the Konkan Registration District. Drs. Nolan and Welsh stand next in order. Out of 8,087 children Dr. Wall

could inspect only 2,594; so also Dr. Nolan was only able to see 5,986 children out of 15,701. This was, no doubt, due to the migration of the people on account of the prevalence of famine.

Remarks on the work of Deputy Sanitary Commissioners and Superintendents.

36. The officers of the department have one and all carried on their duties with great energy and perserverance and under exceptional difficulties. In Bombay City Mr. Ananta Chandroba has shown great tact in working the Compulsory Vaccination Act No. I. of 1877.

Work of Inspectors of Sanitation and Vaccination and Assistant Superintendents.

37. Thirty Inspectors of Sanitation and Vaccination and 4 Assistant Superintendents of Vaccination were on travelling duty. Of these 29 are paid by Government and 5 by Native States. They traversed 77,872 miles, visited 12,875 villages, encamped at 5,423 different places, and inspected 219,938 children.

Districts and Circles.		Number of Encampments.	Number of Travelling Days.	Distance travelled in Miles.	Number of Villages visited.	Works tested by calling names from Register.									
						Number of Vaccinated Children inspected.	Present during Inspection.				Absence accounted for.	Absence unaccounted for.	Successful.	Unsuccessful or Doubtful.	Unknown.	Total.
							Successful.			Unsuccessful.						
							Character of Vesicles and Cicatrices.									
							Good.	Middling.	Bad.							
Northern Deccan Registration District.	1877-78	856	1,664	17,387	2,199	45,072	39,390	2,186	755	2,741	22,317	5	64,811	1,408	1,175	67,394
	1876-77	..	..	14,372	2,153	56,988	50,126	2,912	596	2,354	20,183	1	73,688	1,439	1,045	76,172
Southern Deccan Registration District.	1877-78	952	1,451	11,115	2,419	53,030	42,773	6,493	1,802	1,962	28,847	96	77,958	1,413	2,602	81,973
	1876-77	..	..	11,550	2,455	70,737	57,547	8,646	2,057	2,487	24,336	73	91,321	1,599	2,226	95,146
Konkan Registration District	1877-78	785	1,144	9,300	1,296	30,719	22,660	4,366	1,844	1,849	5,213	27	34,705	1,001	253	35,959
	1876-77	..	..	8,952	1,381	34,292	28,604	3,127	1,288	1,273	3,656	..	36,764	858	326	37,948
Eastern Guzerat Registration District.	1877-78	445	1,113	10,852	2,084	40,795	18,211	14,737	6,488	1,359	8,160	22	47,179	1,127	671	48,977
	1876 77	..	..	10,682	1,981	39,335	20,316	12,627	5,380	1,012	8,474	1	45,831	1,080	899	47,810
Western Guzerat Circle	1877-78	219	479	3,645	568	14,233	10,107	2,590	1,170	366	5,197	3	17,921	923	589	19,433
	1876-77	..	..	3,960	479	14,020	8,182	3,606	1,826	406	3,608	..	16,228	833	567	17,628
Sind Registration District	1877-78	979	1,255	15,640	2,385	36,089	7,635	14,400	11,121	2,933	17,302	1	47,968	2,450	2,974	53,392
	1876-77	..	..	12,943	1,050	14,513	2,438	8,089	2,969	1,017	5,648	..	18,453	797	911	20,161
Baroda	1877-78	1,035	1,064	8,386	1,583	35,232	..	..	..	..	..	..	..	..	..	..
	1876-77	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cutch	1877-78	152	243	1,547	323	9,302	..	..	..	..	..	..	..	..	..	..
	1876-77	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	1877-78	5,423	8,413	77,872	12,857	219,938	140,776	44,772	23,180	11,210	87,036	154	290,542	8,322	8,264	307,128
	1876-77	..	..	62,459	9,499	228,885	167,213	39,007	14,116	8,549	65,905	75	282,285	6,606	5,974	294,865

The number absent at the time of inspection was considerable in the Northern and Southern Deccan Registration Districts. The conduct of all these inspecting officers had, on the whole, been reported to be good and satisfactory. Three Inspectors, one in each of the Northern and Southern Deccan and Konkan Registration District have been promoted to the rank of 1st grade on a salary of Rs. 130 per month, inclusive of batta. Two Inspectors in the Northern Deccan Registration District for the Collectorates of Sholápur and Khandesh retired on pension.

Total Inspections.

38. The working and supervising staff collectively travelled over 92,352 miles, inspected 14,126 villages, and halted at 5,809 different encampments. The number of children inspected was 266,781. The percentage of inspections to vaccinations is 35·53.

Conduct of vaccinators.

39. Eight vaccinators were dismissed the service, four in the Southern Deccan, two for falsification of the returns, and one for intemperate habits, and one for misconduct; three in the Eastern Guzerat Registration District, one in the Mándvi Taluka, Surat Zillah, one in Sunkheda Mewas, Rewa Kánta States, and one out of the two Ahmedabad Municipal Vaccinators for indolence and negligence; and one in the Western Guzerat Circle, who was employed in Mángrol, for falsification of returns. Three vaccinators were reduced in grade, one in the Southern Deccan, Sindgi Taluka, Kaládgi Zillah, one in the Northern Deccan, Junnar Taluka, Poona Zillah, from 2nd to 3rd grade, and one in the Western Guzerat Circle, Limri State, from 1st to 2nd grade. There were several transfers among the vaccinators of the Southern Deccan, Eastern Guzerat, and Sind Registration Districts on account of promotions to vacancies in higher grades caused by deaths, resignations, dismissals, retirements

on pension, reductions in grade, abolition of appointment, or for not working satisfactorily well with the Revenue Authorities or talúka people. Six vaccinators died, 4 in the Southern Deccan and one in the Sind Registration District, and one in the Presidency Circle; seven vaccinators resigned, one in the Southern Deccan, two in the Eastern Guzerat, and two in the Sind Registration Districts, one in the Western Guzerat and one in the Presidency Circles; and five vaccinators having been incapacitated for further service, retired either on gratuity or pension, one in the SouthernDeccan, one in the Konkan, one in the Eastern Guzerat, one in the Western Guzerat, and one in the Presidency Circle.

Clerks.

40. Three clerks resigned, one in the Northern Deccan, one in the Southern Deccan, and one in the Eastern Guzerat Registration District. The conduct of all the clerks was reported to have been good.

Inoculation.

41. Inoculation was reported to have been carried on in Peint State in January 1877, but the inoculator could not be traced.

Syphilis or any other ill-effects caused by vaccination.

42. There was no report of any instance of syphilis or other ill-effects having been communicated through vaccination.

Aid from Civil and Political Officers.

43. The Deputy Sanitary Commissioners and Circle Superintendents acknowledge the aid they have received from the Civil and Political Officers.

Small-pox.

44. Small-pox prevailed everywhere throughout the Presidency. In the Northern Deccan, Dr. Nolan says, "there was a considerable increase in the amount of small-pox, the total deaths having amounted to 4,897." In the Southern Deccan the largest number of small-pox cases occurred in the Dharwar Collectorate, and the village officers were said to have been backward in reporting the first cases. In the Konkan Registration District cases of small-pox occurred in several villages of all the collectorates. In Bombay there were 688 deaths from small-pox during the official year 1877-78. In the Eastern Guzerat Registration District cases of small-pox occurred in different parts of the Ahmedabad and Kaira Collectorates and the States of Rewa Kánta and Mahi Kánta. Arrangements were made to employ extra hands to carry on vaccination in the affected places of the Ahmedabad Collectorates; and the President, Local Fund Committee, Ahmedabad, placed at the disposal of the Sanitary Department a sum of Rs. 125 for the purpose, of which Rs. 25-11-3 had been expended at the close of the year. In 33 out of 42 vaccination districts, comprising the Western Guzerat Circle, the prevalence of small-pox cases was reported either by the vaccinators themselves or by the village officials. The disease spread very rapidly. In Sind the disease was rife in Kurrachee and Hyderabad Zillahs and was said to have been introduced from Lakhpat in Cutch. It was also severe in the city of Baroda in the hot weather of 1877. It also existed more or less in the outlying parts of the Baroda State. The protected by vaccination were quite free from this attack. The disease was also prevalent in Cutch, but in a milder type. In Aden there were eighteen cases of small-pox.

Small-pox occurring after vaccination.

45. Instances of small-pox occurring after vaccination have been noticed by the Deputy Sanitary Commissioners, Konkan and Sind Registration Districts and the Superintendent of Vaccination, Western Guzerat Circle, but they were all of a very mild type, and in only one instance in Sind did it prove fatal. In this case the child was only seven months old and was only vaccinated the day previous to that of the attack.

Suggestions for the more effectual spread of vaccination.

46. With regard to the more effectual spread of vaccination, the late Dr. McAlister expressed his opinion as follows:—

"Vaccination is still very backward in many large towns. The great difficulty is apparently to keep a continuous supply of lymph, as the inhabitants most strenuously object to allow lymph to be taken from their children. What is the inevitable result? that vaccination is too often performed with lymph from tubes, and consequently success and protection too unfrequent. In this way what we are using our most strenuous endeavours to hold up to the people as a prophylactic is often to be inert against the ravage of small-pox, because a native cannot be made to understand that a perfect vesicle is necessary for protection. I have personally urged upon the members of the Municipal Committees the great importance of their countenance and support and have on many occasions believed that I have made some impression on them; it turned out to be more apparent than real however. The time has now come I think when Government ought to interfere, and I would suggest it should be intimated through the President to the local members of some municipalities that Government view with displeasure the want of interest shown by many of them in the promotion and spread of vaccination."

The Deputy Sanitary Commissioner, Sind Registration District, suggests the introduction of vaccination into the territories of H. H. the Khan of Khelat and H. H. the Jam of Lus Beyla, as small-pox is said to be imported thence into British territory. He hopes that the provisions of the Bombay Vaccination Act No. I. of 1877 will be made applicable to the town of Kurrachee before the close of another year.

47. The work of the different establishments by Districts and Circles is thus reviewed.

Work of the Government Vaccinators.

48. The two Government vaccinators, one in each of the cantonments of Rájkot and Deesa, work among 95,926 souls in an area of 269 square miles. They are under the control of the Superintendent of Vaccination, Western Guzerat Circle, and have performed primary vaccinations on 5,472 and re-vaccinations on 70 persons, or on 46 and 141 persons less than in 1876-77. Protection has been afforded to 5,311 persons by primary vaccinations, and to 58 persons by re-vaccinations, giving the percentages of 97·06 and 82·85. There were 82 cases unsuccessful and 79 unknown in primary and only 12 unsuccessful in re-vaccinations. The decrease is ascribed to the less amount of work performed by the Rájkot Station Vaccinator. The cost of each successful case amounts to anna 1-7, or a pie more than in the preceding year. Half the cost of the Deesa Cantonment vaccination is borne by the Cantonment Committee. The ratio per mille of population protected is 55·97.

Besides these two vaccinators there are three others employed by Government in each of the military stations of Mhow, Neemuch, and Nusseerabad, and, in accordance with Government Resolution No. 3,350, dated 26th November 1875, they are under the control of the Staff Surgeon, who sends the monthly returns of their work to this department. This work is included under the head of Native Army Camp Followers.

Work of Cantonment Vaccinator.

49. There is only one vaccinator for the cantonments of Poona and Kirkee, and his cost is defrayed by the Cantonment Committee. The population numbers 28,450 and is spread over 4 square miles. He is under the control of the Deputy Sanitary Commissioner, Northern Deccan Registration District. His work amounted to 845 persons under primary vaccinations, or 18 more than in the previous year, and 28 under re-vaccinations, or 121 less than in 1876-77. Out of these 804 persons were primarily vaccinated with success and only 5 proved successful in re-vaccinations. The percentages of success were respectively 95·14 and 17·86, against 93·23 and 50·94. There were 24 cases returned as unsuccessful, of whom 17 were vaccinated afresh and 34 as unknown in primary, and as many as 20 unsuccessful and only 3 unknown in re-vaccinations. Each successful case cost annas 4 and pies 2. The ratio per mille of population successfully vaccinated was 28·93.

Work of Municipal Vaccinators.

50. There were 43 municipal vaccinators. To them is entrusted the charge of 1,639,737 persons residing in several towns, covering an area of 178 square miles. The number of persons that they have primarily vaccinated and re-

District and Circles.	Persons Primarily Vaccinated.				Persons Re-vaccinated.				Total Number of Persons operated on.			
	1877-78.	1876-77.	Increase.	Decrease.	1877-78.	1876-77.	Increase.	Decrease.	1877-78.	1876-77.	Increase.	Decrease.
Northern Deccan Registration District	9,442	13,587	..	4,145	291	587	..	296	9,733	14,174	..	4,441
Southern Deccan Registration District	10,129	10,528	..	399	369	395	..	26	10,498	10,923	..	425
Konkan Registration District	1,791	1,745	46	..	683	249	434	..	2,474	1,994	480	..
Presidency Circle	11,743	16,075	..	4,332	3,243	3,440	..	197	14,986	19,515	..	4,529
Eastern Guzerat Registration District	10,812	11,301	..	489	1,074	1,823	..	749	11,886	13,124	..	1,238
Sind Registration District	5,680	7,797	..	2,117	4,282	4,094	188	..	9,962	11,891	..	1,929
Aden	653	638	15	..	6	15	..	9	659	653	6	..
Total	50,250	61,671	61	11,482	9,948	10,603	622	1,277	60,198	72,274	486	12,562

vaccinated is respectively 50,250 and 9,948. This gives a decrease of 11,421 in primary and of 655 in re-vaccination when compared with the preceding year. The decrease is observed in all the Districts and Circles, except the Konkan and Aden. The decrease in the Northern Deccan occurred in all the municipal towns, and chiefly in Pandharpur, where it was 1,072, and in Ahmednagar, where it was 1,022, in primary vaccinations. The decrease in the towns of Sholápur and Bársi together is 1,027. In the Southern Deccan Registration District the decrease took place in the Satara, Hubli, and Gadag Municipalities. There was also a decrease in the Ilkal town to the extent of 578, but this has been more than covered by the vaccinations done in the town of Kaládgi and other towns of that zillah. The decrease in the Presidency Circle is treated of elsewhere. The decrease in the Eastern Guzerat Registration District is owing to the less work performed by the Surat and Broach Municipal Vaccinators who had to assist the Taluka Vaccinators, in addition to their own duties, to check the out-break of small-pox that was prevalent in the Surat and Broach Collectorates till June 1877. The decrease in the Sind Registration District is attributable to the decrease in the towns of Kurrachee and Hyderabad, and the abolition of the Municipal Vaccinator at Rhori, in the Shikárpur Zillah. The decrease in Kurrachee was 1,721, and the two Vaccinators, who performed the work, have since been transferred to the talukas of the Kurrachee Collectorate. Out of the 50,250 persons primarily vaccinated, 46,335 were successful, 1,343 unsuccessful, and 2,574 escaped observation. Of the re-vaccinations 6,645 were successful, 2,029 unsuccessful, and 1,274 unknown. The percentages of success were 92·21 in primary and 66·79 in re-vaccinations. The rate of protection afforded was 32·39 per 1,000 of population. Each Municipal Vaccinator on an average operated on 1,400 persons, or 31 less than in the preceding year, and 366 below the average for the whole Presidency. The cost of each successful case was annas 5 and pie 1, which is 1 anna and 3 pies more than in the previous year. Now that the Vaccination Districts and Circles correspond with those for registration of births and deaths, it would be better if the Collectors arranged with the Municipal Committees of those Town Circles, in which births and deaths are separately compiled, to provide for the entertainment of vaccinators in them.

Town Circles that require special Vaccinators.

The Town Circles requiring Vaccinators are Chopra and Nusseerabad, in Khandesh; Yeola, in Násik; Sangamner, in Ahmednagar; Junnar in Poona; Karád and Wai in Satara; Gokák and Athni, in Belgaum; Ránibennur, in Dharwar; Karwar and Coompta, in Kanara; Vingorla and Ratnágiri, in Ratnágiri; Kalyán, in Tanna; Bulsar, in Surat; Jambusar, in Broach; Kaira, Borsad, and Kapadvanj, in Kaira; Godhra and Dohad, in Panch Máháls; Gogo, in Ahmedabad; and Lárkána, in Shikárpur. In all towns, with a population of 10,000, there should be special Vaccinators. Each cantonment, with a population of 10,000, now entertains a special Vaccinator and pays him for his work.

It is true that the Medical Officers in charge of the dispensaries situated in many of the above-mentioned towns carry on vaccination: they can only devote a portion of their time to this work.

51. Each taluka has now its own Vaccinator, paid out of Local Funds; but where the taluka is large, there are two. There are now 219 Vaccinators, but each Rural Circle should have at least one. There are 5 Rural Circles in Khandesh, 3 in Dharwar, 1 in Colába, 1 in Broach, 4 in Kurrachee, 1 in Hyderabad, 1 in

Work of the Local Fund Vaccinators.

Rural Circles that require special Vaccinators.

Thar and Párkar, and 4 in Shikárpur, without any Vaccinator of their own. The Collector of Khandesh has provided for 8 extra Vaccinators during the current year, but it will be far better if the grant were a permanent one. In Sind the population is sparse and the Vaccinators have to travel over larger areas than in other districts. If one Vaccinator were provided for each Rural Circle, he might now be paid by the allowance formerly made from Local Fund to the Deputy Sanitary Commissioner, but now discontinued under Government Resolution No. 3467, dated the 9th August 1877, Financial Department. The present number of Local Fund Vaccinators worked in an area of 124,232 square miles, having a population of 14,556,783 souls. They have vaccinated 340,998, and re-vaccinated 58,841 persons. Compared with the year 1877-78, as may be seen from the following table, there has been a net decrease of 53,777 in primary and of 56,761 in re-vaccinations. Primary vaccinations were performed more than once on 1,888 persons, and re-vaccinations on 314. There were 326,670 successful,

Districts.	Persons Primarily Vaccinated.				Persons Re-vaccinated.				Total number of Persons operated on.			
	1877-78	1876-77.	Increase.	Decrease.	1877-78.	1876-77.	Increase.	Decrease.	1877-78.	1876-77.	Increase.	Decrease.
Northern Deccan Registration District...	74,710	109,057	...	34,347	850	885	...	35	75,560	109,942	...	34,382
Southern Deccan Registration District...	70,274	93,109	...	22,835	1,008	1,165	...	157	71,282	94,274	...	22,992
Konkan Registration District	60,547	66,212	...	5,665	4,408	2,996	1,412	...	64,955	69,208	...	4,253
Eastern Guzerat Registration District...	69,783	68,163	1,620	...	3,092	2,054	1,038	...	72,875	70,217	2,658	...
Sind Registration District...	65,684	58,234	7,450	...	49,483	54,725	...	5,242	115,167	112,959	2,208	...
Total ...	340,998	394,775	9,070	62,847	58,841	61,825	2,450	5,434	399,839	456,600	4,866	61,627

7,765 unsuccessful, and 8,451 unknown cases in primary vaccinations; and 46,944 successful, 7,055 unsuccessful, and 5,156 unknown cases in re-vaccinations. The percentages of success were 95·79 and 79·78 in both kinds of operation, or 25·66 per mille of population were successfully operated on. Each successful case cost two annas and ten pies, or four pies more than in the preceding year. Each Vaccinator averaged 1,826 persons, or 60 more than the general average for the whole Presidency, or 364 below that in 1876-77. The decrease in the work of these Vaccinators obtains principally in the Northern and Southern Deccan and in the Konkan. The decrease reached its maximum in the Collectorates of Násik, Kaládgi and Tanna. There was an increase of work in the Kanara and Ratnágiri Collectorates among re-vaccinations; but the decrease in the Colába and Tanna Districts was more than the increase.

Districts and Circles.	Persons Primarily Vaccinated.				Persons Re-vaccinated.				Total number of Persons operated on.			
	1877-78.	1876-77.	Increase.	Decrease.	1877-78.	1876-77.	Increase.	Decrease.	1887-78.	1876-77.	Increase.	Decrease.
Northern Deccan Registration District...	3,283	4,468	...	1,185	18	14	4	...	3,301	4,482	...	1,181
Southern Deccan Registration District...	25,434	39,795	...	14,361	482	502	...	20	25,916	40,297	...	14,381
Konkan Registration District	6,754	8,805	...	2,051	2,712	1,193	1,519	...	9,466	9,998	...	532
Eastern Guzerat Registration District...	33,835	32,187	1,648	...	164	222	...	58	33,999	32,409	1,590	...
Western Guzerat Circle	91,623	91,546	77	...	3,576	1,445	2,131	...	95,199	92,991	2,208	...
Sind Registration District...	3,775	2,511	1,264	...	137	662	...	525	3,912	3,173	739	...
Baroda Circle... ...	68,379	53,922	14,457	...	82	232	...	150	68,461	54,154	14,307	...
Cutch Circle	13,690	9,157	4,533	...	57	43	14	...	13,747	9,200	4,547	...
Total ...	246,773	242,391	21,979	17,597	7,228	4,313	3,668	753	254,001	246,704	23,[illegible]	15,094

Work of Native State Vaccinators.

52. This table gives the work of 143 Native State Vaccinators among 8,712,237 persons in 70,915·64 square miles. The Native State Establishment was up to the required strength, but an additional Vaccinator is necessary for the Sáwant Wári State, for taluka Sángli in the Sángli State, and for Gadhinglaj, Panála, and Kolhápur Petha of the Kolhápur States, and it is to be hoped the Political Agents of Sáwant Wári, Southern Maratha Country, and Kolhápur States may be able to get the additional grant. There has been a decrease in the Nothern and Southern Deccan and Konkan Registration Districts, but this has been more than counterbalanced by an increase in the other districts. There was an increase of 14,457 in primary vaccinations in the Baroda State. The net increase in primary vaccinations was 4,382 and in re-vaccinations 72·97. The increase under re-vaccinations in the Konkan Registration District in the State of Sáwant Wári has reduced the decrease in the primary vaccinations in that district to 532. The members of this establishment primarily vaccinated 246,773 and re-vaccinated 254,001 persons, of whom 228,333 and 4,339 were successful, giving the percentages of 92·52 and 60·03; or in other words 26·76 persons per mille of population were vaccinated and re-vaccinated with success. There were 10,447 unsuccessful, and of these 1,162 were vaccinated a second time, and 9,155 unknown cases in primary vaccinations. In re-vaccinations, out of 2,371 unsuccessful cases, 31 were secondary operations. In 531 cases re-vaccinated, the result could not be ascertained.

States that require additional vaccinators.

Work of Dispensaries.

53. The Medical Officers of 132 dispensaries, against 118 in the previous year, have performed primary vaccinations on 20,201 and re-vaccinations on 3,356 persons, or on 235 and 357 persons more than in 1876-77. The increase is due to the increase of work in the Sind Registration District and the Baroda State. This is the first year in which vaccination has been carried on at the Dispensaries instituted in the Baroda State. In all the other Districts and Circles there was a decrease, which amounted to nearly 50 per cent. in the Northern Deccan Registration District. There were 17,904 successful primary vaccinations and 1,752 re-vaccinations, the percentages of success being 88·62 and 52·20. The "unsuccessful" and "unknown" cases in primary vaccinations were 1,531 and 1,025 and in re-vaccinations 640 and 988. The excess of operations over persons was 259 and 24 in each kind of operation:—

Districts and Circles.	Persons Primarily Vaccinated.				Persons Re-vaccinated.				Total number of Persons operated on.			
	1877-78.	1876-77.	Increase.	Decrease.	1877-78.	1876-77.	Increase.	Decrease.	1877-78.	1876-77.	Increase.	Decrease.
Northern Deccan Registration District...	2,390	4,688	...	2,298	92	74	18	...	2,482	4,762	...	2,280
Southern Deccan Registration District ..	2,217	2,908	...	691	789	463	326	...	3,006	3,371	...	365
Konkan Registration District	2,529	3,104	...	575	475	513	...	38	3,004	3,617	...	613
Eastern Guzerat Registration District...	5,195	5,738	...	543	248	197	51	...	5,443	5,935	...	492
Western Guzerat Circle	1,734	1,934	...	200	196	68	128	...	1,930	2,002	...	72
Sind Registration District	2,869	1,624	1,245	...	1,550	1,684	...	134	4,419	3,308	1,111	...
Baroda	3,267	...	3,267	...	6	...	6	...	3,273	...	3,273	...
Total ...	20,201	19,996	4,512	4,307	3,356	2,999	529	172	23,557	22,995	4,384	3,822

54. The following table shows the number of successful cases only for the calendar year 1877 in the British Troops, as compared with the year 1876-77 :—

Work performed in the British Army.

British Army. Strength... 1876...10,116. 1877...10,061.		Number successfully vaccinated.								Total.
		Europeans.				Natives.				
		Males.	Females.	Children.	Total.	Males.	Females.	Children.	Total.	
Regiments ..	1876	936	96	458	1,490	...	...	6	6	1,496
	1877	631	34	345	1,010	...	...	25	25	1,035
Lines ...	1876	...	...	...	...	73	42	302	417	417
	1877	...	...	10	10	14	11	129	154	164
Bazars ...	1876	...	...	17	17	...	...	43	43	60
	1877	...	...	...	...	43	25	46	114	114
Total ...	1876	936	96	475	1,507	73	42	351	466	1,973
	1877	631	34	355	1,020	57	36	200	293	1,313

There is a decrease of 660 persons this year. The information furnished by this return is very meagre, and it would be better to substitute for it the return now in use for Native Troops; they might be sent to this office to be compiled.

Suggestion for the introduction of Native Army Vaccination form into the British Army.

55. The following statement gives full particulars of vaccination in the Native Army and contrasts it with the preceding year:—

Work performed in the Native Army.

Native Army. Strength.. 1877-78..22,561. 1876-77..22,583.		Primary Vaccinations.														
		1		2					3		4					5	6
		Sex.		Caste.					Age.		Result.						
											Successful.			Unsuccessful and Doubtful.	Unknown.	Total.	Excess of Operations over Persons.
		Males.	Females.	Christians.	Hindus.	Musalmans.	Parsis.	Other Castes.	Under 1 year.	Above 1 year.	Under 1 year.	Above 1 and under 6 years.	Total of all Ages.				
Regiment	1877-78	1,002	916	69	1,390	412	2	45	1,479	439	1,430	375	1,814	188	6	2,008	90
	1876-77	1,255	973	76	1,569	507	1	75	1,657	571	..	..	2,094	186	28	2,308	80
Camp Followers ..	1877-78	1,233	1,052	49	1,513	577	23	123	1,972	313	1,825	275	2,106	272	7	2,385	100
	1876-77	1,457	1,348	59	1,874	679	26	167	2,313	492	..	..	2,565	332	9	2,906	101
Total ..	1877-78	2,235	1,968	118	2,903	989	25	168	3,451	752	3,255	650	3,920	460	13	4,393	190
	1876-77	2,712	2,321	135	3,443	1,186	27	242	3,970	1,063	..	..	4,659	518	37	5,214	181

Native Army. Strength.. 1877-78..22,561. 1876-77..22,583.		Re-vaccinations.							Percentages of Successful Cases.	
		7		8			9	10	11	
		Sex.		Result.						
		Males.	Females.	Successful.	Unsuccessful and Doubtful.	Unknown.	Total.	Excess of Operations over Persons.	In Primary Vaccinations.	In Re-vaccinations.
egiment	1877-78	1,024	196	915	432	2	1,349	129	94·57	75·00
	1876-77	....	....	1,814	635	14	2,463	72	93·99	75·87
Camp Followers ..	1877-78	173	29	189	19	..	208	6	92·16	93·56
	1876-77	....	....	397	99	..	496	4	91·44	80·69
Total ..	1877-78	1,197	225	1,104	451	2	1,557	135	93·26	77·64
	1876-77	....	....	2,211	734	14	2,959	76	92·57	76·69

The Native Army Medical Officers, including the three Military Cantonment Vaccinators of Mhow, Neemuch, and Nusseerabad, have primarily vaccinated 4,203 and re-vaccinated 1,422 persons. The numbers are less than those for 1876-77, but there are fewer persons "unprotected." The number of successful primary operations was 3,920, there being 460 unsuccessful and 13 unknown, and in re-vaccinations there were 1,104 successful, 451 unsuccessful, and 2 unknown. The percentages of success were 93·26 and 77·64 in each kind of operation. These percentages are higher than those in the preceding year.

Average number of persons operated on by each establishment.

56. The average number of persons vaccinated and re-vaccinated by each Vaccinator are—

		1877-78.	1876-77.
1*st*—	2 Government Vaccinators ...	2,771	2,864
2*nd*—	43 Municipal do.	1,400	1,431
3*rd*—	1 Cantonment do.	873	986
4*th*—	219 Local Fund do.	1,826	2,190
5*th*—	143 Native States do.	1,776	1,841
6*th*—	For the whole Presidency	1,766	1,975

Average number of vaccinations per Vaccinator in each District and Circle.

57. These figures, when arranged according to Districts and Circles, stand thus, as contrasted with those for the preceding year—

	Districts and Circles.	Average number of Persons vaccinated by each Vaccinator.		Names of Deputy Sanitary Commissioners and Superintendents.
		1877-78.	1876-77.	
1	Sind Registration District ...	2,581	2,845	Drs. A. J. Leggatt and N. Hopkins.
2	Western Guzerat Circle ...	2,343	2,408	Dr. J. T. Welsh.
3	Baroda	2,208	2,083	Dr. T. Cody.
4	Eastern G. R. D.	1,915	1,898	Dr. M. B. Colah.
5	Presidency Circle	1,873	1,220	Mr. Ananta Chandroba.
6	Konkan R. District	1,709	1,804	Drs. J. McAlister, W. Niven, Ross, W. A. Barren, and C. W. MacRury.
7	Southern D. R. D.	1,298	1,774	Drs. R. M. Wall and G. Bainbridge.
8	Northern D. R. D.	1,278	1,963	Dr. W. Nolan.
9	Cutch	916	708	Mr. Dorabji Hormusji
10	Aden	659	658	Dr. Patterson.

It will be observed that, as in the previous year, Sind, Western Guzerat, and Baroda have again maintained their places. The Eastern Guzerat District has risen from the 5th to the 4th and the Presidency Circle from the 8th to the 5th place; but the only district that has lost is the Northern Deccan, which now occupies the 8th place instead of the 5th. The high average in the Presidency Circle is owing to the reduction of Vaccinators from 16 to 9.

Work performed in each District and Collectorate

58. In the following paragraphs the particulars of work in each Collectorate, Native State, and District have been reviewed and the percentages of success given for each Collectorate, exclusive of the Dispensaries.

Progress in the Northern Deccan Registration District.

59. The Northern Deccan Registration District, comprising the Collectorates of Khandesh, Násik, Ahmednagar, Poona, and Sholápur, and the Native States of the Khandesh Agency, Peint, Akalkot, and Modnimb, has a population of 4,296,187, and an area of 38,960 square miles. Its administration was vested in the hands of Dr. W. Nolan, who had under his control 7 Inspectors of Sanitation and Vaccination, 2 Clerks, 1 Cantonment, 9 Municipal, 58 Local Funds,

and 2 Native State Vaccinators, and 79 peons. Each Vaccinator has on an average of 61,374 population and an area of 557 square miles. In addition 21 Dispensaries sent him their returns. There were 88,280 persons primarily vaccinated and 1,187 re-vaccinated by all the vaccinators. This is certainly below the mark, but this is attributed by him "to increased amount of small-pox on the one hand all over the District and to Famine on the other, as also to general migration of the population to different localities." There was also a falling off in the work of Dispensaries, which amounted to 2,390 primary and 92 re-vaccinations. The amount of protection afforded was 19·98 per mille from both kinds of operations, or 96·35 and 65·96 were the number successful in the primary vaccinations and re-vaccinations. The average cost for each successful case was annas 7-1, nearly double the cost in the previous year. The total number of primary successful cases was 85,055 and of re-vaccination 783. The whole expenditure was Rs. 38,194-15-2. The number of deaths from small-pox was 4,629. The average number of persons vaccinated by the vaccinators was 1,278 against 1,963 in 1876-77. Additional vaccinators are required for five towns, and six Rural Circles.

Khandesh Collectorate.

60. The collectorate of Khandesh extends over 10,162 square miles, having a population of 1,028,642. There are now 18 vaccinators on the permanent list, but 7 more (2 for the towns of Chopra and Nusseerabad and 5 for the Pethas) are still required to be retained permanently. Eight extra vaccinators have been sanctioned during the current year. The eighth might be permanently employed in the Dáng territory. In 25,990 primary vaccinations and 151 re-vaccinations 25,095 and 141 were respectively successful. The percentages of success were respectively 96·55 and 93·37, or 24·53 per mille of population were successfully operated on. Each vaccinator averaged 1,452. The deaths from small-pox were 1,749.

Násik Collectorate.

61. The Násik Collectorate has a population of 687,353 and an area of 7,156 square miles. 12 vaccinators are employed in it, but one more is necessary for the town of Yeola. The particulars of vaccine work returned by the vaccinators are : Primary vaccinations 12,693, successful cases 11,915, or 93·87 per cent. Re-vaccinations 257, successful cases 123, or 47·81 per cent. Amount of protection per 1,000 of population 17·51. This is far below the work of the previous year. Each vaccinator averaged only 1,079. The deaths from small-pox numbered 1,081.

Ahmednagar Collectorate.

62. In the Ahmednagar Collectorate there are 12 vaccinators working among 773,938 persons in an area of 6,647 square miles. Sangamner town requires the services of a special vaccinator. There were 16,391 primary vaccinations and 277 re-vaccinations, of which 15,970 and 129 were successful. The percentages of success were 97·43 and 46·57 respectively, or taking both together there were 20·80 per 1,000 of population successfully operated on. Each vaccinator averaged 1,389 persons. The work is below that of the preceding year. There were 702 deaths from small-pox.

Poona Collectorate.

63. The area of the Poona Collectorate is 5,099 square miles with a population of 907,235. At present there are 14 vaccinators, and 2 more are wanted, one for the town of Junnar and one for the taluka of Khed. Primary vaccinations numbered 16,114 and re-vaccinations 254, and were successful in 15,658 and 215 respectively. The percentages being 97·17 in the primary and 84·16 in the re-vaccinations, or 17·49 per every 1,000, taking both the operations together. The average per vaccinator was 1,169. This collectorate has also fallen back to a considerable extent. One of its vaccinators has been reduced a grade for indolence and negligence of work. Small-pox deaths were 560.

Sholápur Collectorate.

64. The Sholápur Collectorate has now 12 vaccinators working in a population of 718,034 and an area of 4,509 square miles. They have vaccinated with success 13,378; or 96·87 per cent., and re-vaccinated similarly 168, or 73·04 per cent., out of 13,807 and 230 persons. Only 18·86 persons were protected out of every 1,000. 537 persons

died from small-pox. There is a falling off in this collectorate also. Each vaccinator on an average operated on 1,170 persons.

Native States in the Northern Deccan Registration District.

65. The four Native States in the Northern Deccan Registration District have an area of 5,387 square miles and a population of 180,985. The Dáng territory has no vaccinator; and the Miraj State pays Rs. 4 per month to the Local fund Vaccinator of the Mádha Taluka for performing work in Modnimb. Total primary vaccinations were 3,283 and re-vaccinations 18. The successful cases were 3,039 and 7 respectively, and the percentages of success were 92·57 and 35·00, or for both together 16·83 per 1,000.

Progress in the Southern Deccan Registration District.

66. The Southern Deccan Registration District has four collectorates, Satara Belgaum, Dharwar, and Kaládgi, and the Native States of Kolhápur, the Satara and the Southern Marátha Jahagirs and Sawanur under the Dharwar Agency. The collective area is 28,110 square miles and population 5,554,665. There are 5 Inspectors of Sanitation and Vaccination, 1 Assistant Superintendent of Vaccination, 2 Clerks, 10 Municipal, 43 Local Fund, and 30 Native State Vaccinators, and 93 peons. Each vaccinator has on an average 66,924 population and an area of 339 square miles. More vaccinators are required for 5 towns, 3 Rural Circles, and 4 Native States. Work was performed in 16 Dispensaries. The Itinerant Establishment has primarily vaccinated 105,837 and re-vaccinated 1,859 persons, of whom 98,005, or 92·59, and 1,377, or 73·87 per cent., were successful. The ratio of success per mille of population was 17·89. The Dispensaries returned 1,913 successful cases, or 86·29 per cent., in 2,217 persons primarily vaccinated, and 564 successful cases, or 71·48 per cent., in 789 persons re-vaccinated. The causes of such a decrease in the amount of work are according to the Deputy Sanitary Commissioner "the effects of famine of last year which operated by reducing the numbers of subjects and causing movements of the population. Unusual sickness among the vaccinators seems also to have had an unfavourable effect on the amount of work." The average work for each vaccinator was 1,298. The total cost was Rs. 42,276-13-7, and the average cost per each successful case was annas 6-10 against annas 4-4 in the preceding year. There were reported 3,562 deaths from small-pox.

Satara Collectorate.

67. There are 1,061,002 persons living in the Satara Collectorate, which has an area of 4,804 square miles. It has now 14 vaccinators and 2 more are required for each of the towns of Karád and Wai. There were 31,015 primary and 425 revaccinations. Of these 29,420, or 94·85, and 291, or 67·83 per cent., were successful. Protection was afforded to 28 per 1,000 of population. Each vaccinator vaccinated on an average 2,246 persons. Small-pox carried off 587 persons.

Belgaum Collectorate.

68. The Belgaum Collectorate has an area of 4,592 square miles and a population of 9,38,750. There are 12 vaccinators in it, who performed 15,328 primary vaccinations and 282 re-vaccinations. There were 14,396 persons primarily vaccinated and 241 re-vaccinated with success, the percentages being 93·91 and 85·46. Each vaccinator vaccinated on an average 1,301, and only 15·59 per mille of population have been protected. Two more vaccinators are wanted, one for each of the towns of Gokák and Athni. There were 865 deaths from small-pox.

Dharwar Collectorate.

69. There are in all 14 vaccinators in the Dharwar Collectorate, which has a population of 988,037 and an area of 4,565 square miles. One more vaccinator is required for the town of Ránibennur. Primary vaccinations numbered 18,067 and re-vaccinations 159. There were 16,584, or 91·23 per cent., and 107, or 66·87 per cent., successful cases in the primary and re-vaccinations. Protection has been afforded to only 16·89 per 1,000 of population. Deaths from small-pox numbered 1581. In this Collectorate three more vaccinators are required in each of the three pethas.

Kaládgi Collectorate.

70. The collectorate of Kaládgi has a population of 816,037 in an area of 5,695 square miles. It has 13 vaccinators; four othres are wanted, one for each of the talukas of Bágalkot,

Hungund, Bádámi, and Indi. The Itinerant Establishment performed 16,026 primary vaccinations on 15,993 persons, of whom 13,873, or 86·74, were successful. The re-vaccinations numbered 511 and of these 306, or 59·88, were successful. Taking both the operations together they resulted in the success of 17·37 per every 1,000 of population. Each vaccinator averaged 1,270. Deaths from small-pox were reported to have been 529 in number.

Native States in the Southern Deccan Registration District.

71. The Native States in the Southern Deccan Registration District have an area of 8,363·98 square miles and a population of 1,750,839. The Kolhápur States maintain 11 vaccinators and an Assistant Superintendent of Vaccination and 12 peons, but an extra one is required for Gadhinglaj, Panála, and Kolhápur Petha. The Southern Maratha Jahagirs have 13 vaccinators, and though the Sángli State maintains 4 vaccinators, one more is required for the more populous taluka of Sángli. The Satara Jahagirs have a sufficient number of vaccinators, 5 in all, and the Sawanur State has one vaccinator. All the 30 vaccinators of these Native States primarily vaccinated 25,434 and re-vaccinated 482 persons. Of these 23,732, or 93·38 per cent., and 432, or 89·62 per cent., were successful. The rate of protection per mille of population was 13·79. Each vaccinator on an average vaccinated 864 persons, or 479 below their average in 1876-77. This is chiefly owing to the sickness of vaccinators.

Progress in the Konkan Registration District.

72. The Konkan Registration District, comprising the collectorates of Kanara, Ratnágiri, Colába, and Tanna with the Native States of Sáwant Wári, Janjira, and Jawhár, has an area of 15,888·16 square miles and a population of 2,915,587. The total number of vaccinators is 45, but at least ten more are wanted, five in Town Circles, 4 in Rural Circles, and 1 in a Native State. Out of the 45 vaccinators, 2 are Municipal, 40 Local Fund, and 3 Native State. There are also 4 Inspectors of Sanitation and Vaccination, 2 clerks, and 56 peons. Twenty-four Dispensaries have sent the returns of their work to the Deputy Sanitary Commissioner. Each vaccinator has on an average a population of 64,791 and an area of 353 square miles. The returns of the vaccinators amounted to 69,092 primary vaccinations and 7,803 re-vaccinations. Success was attained in 66,046 primary and 4,435 re-vaccinations, the percentages being 95·59 and 56·84 respectively. Protection was afforded to 24·17 per each thousand of population. Each vaccinator had an average of 1,709. The Dispensary Officers' work amounted to 2,529 primary vaccinations, of which 2,173, or 85·92 per cent., were successful, and 475 re-vaccinations, of which 155, or 32·63 per cent., were successful. Vaccination in this district cost Rs. 27,025-10-7 on the whole, and the average cost for each successful case was annas 6-2, or 6 pies more than in the previous year. The decrease in the amount of the work performed in this district was in the collectorates of Tanna and Colába, and is attributed to the sickness of vaccinators in Tanna and prevalence of cholera in Colába. There were 2,271 deaths from small-pox.

Kanara Collectorate.

73. The Kanara Collectorate has an area of 4,235 square miles and a population of 398,406. There are 11 vaccinators, and two more are wanted, one for each of the towns of Karwar and Coompta. Primary vaccinations numbered 12,289 and re-vaccinations 558. Of these 11,409 and 333 were successful. The percentages of success were 92·84 and 59·68. The rate per mille of population protected was 29·48. Each vaccinator averaged 1,168. Small-pox deaths numbered 452.

Ratnágiri Collectorate.

74. In the Ratnágiri Collectorate there are 4,512 square miles, 1,019,136 persons, and 13 vaccinators, but there are no special vaccinators for the towns of Vingorla and Ratnágiri, where they are much required. There were 25,931 and 2,604 successful cases among 26,486 persons primarily vaccinated and 3,662 persons re-vaccinated. The percentages of success were 97·90 and 71·11, or taking both the operations together 27·99. The average number of each vaccinator's work was 2,319. There were 695 deaths from small-pox.

Colába Collectorate.

75. The collectorate of Colába has a population of 350,405 and an area of 1,504 square miles. There are five vaccinators. Two others are required, one for the Máhad Taluka and one

for the Nagotna Petha. Primary vaccinations numbered 7,609 and re-vaccinations numbered 72. Of these 7,258 and 36, or 95·39 and 50·0 per cent., were successful. Protection was afforded to 20·81 per 1,000 of population. Each vaccinator averaged 1,536. There were 217 deaths from small-pox.

Tanna Collectorate.

76. The Tanna Collectorate has a population of 847,424 and an area of 4,052 square miles. There are 13 vaccinators. The Town of Kalyán requires one and the Umbargaon Petha of the Dáhánu Taluka and Mokhada Petha of the Sháhápur Taluka each require one. There were 15,954 primary vaccinations and 799 re-vaccinations. Of these 15,045, or 94·30 per cent., and 441 or 55·19 per cent., were successful. 18·27 per mille of population were protected. Each vaccinator has on an average 1,289 vaccinations, or 255 below that in the preceding year. Small-pox deaths numbered 907.

Native States in the Konkan Registration District.

77. The Native States in the Konkan Registration District have an area of 1,585·16 square miles and a population of 300,216. The Sáwant Wári State is too large for one vaccinator to manage, and an additional one is wanted. The persons primarily vaccinated and re-vaccinated numbered respectively 6,754 and 2,712, and of these 6,403 and 1,021 were successful, giving the percentages of 94·80 and 37·65. Protection has been afforded to 24·69 per 1,000 of population. Each vaccinator averaged 3,155.

Progress in the Presidency Circle.

78. The Presidency Circle is in charge of Mr. Ananta Chandroba. It consists of the city of Bombay, which has an area of 22 square miles and a population of 644,405. The Bombay Vaccination Act (No. I. of 1877) was introduced on 1st September 1877, and, under its provisions, there are now 1 Assistant Superintendent of Vaccination, 2 Clerks, 1 Head Vaccinator, 6 Public Vaccinators, 2 Assistant Vaccinators, and 3 peons. But the experience of 7 months tends to show that more vaccinators are required. The primary vaccinations numbered 11,743 and the re-vaccinations 3,243, and of these 10,219 and 1,643 were successful. The percentages of success were 87·02 and 50·66. The protection is 18·41 per 1,000 of population. The total cost was Rs. 12,540-2-2, and the average cost for each successful case was Rs. 1-0-11, or annas 6 more than in the preceding year. This is due to the increased expenditure on account of the Act and the small number of vaccine operations performed. The deaths from small-pox were 688.

Progress in the Eastern Guzerat Registration District.

79. The Eastern Guzerat Registration District is in charge of Dr. M. B. Colah. It comprises the collectorates of Surat, Broach, Kaira, Panch Máháls, and Ahmedabad, and the States of Mahi Kánta, Rewa Kánta, Cambay, the Surat Agency and Jambughora. The area is 19,743·50 square miles, and the population is 3,977,490. There are 5 Inspectors of Sanitation and Vaccination, 2 Clerks, 8 Municipal, 35 Local Fund, and 19 Native State Vaccinators, and 68 peons. There were 26 Dispensaries, in which vaccinations were performed. Each vaccinator has on an average 63,185 number of population and 318 square miles. This district wants 14 more vaccinators, 8 for Town Circles, 1 for a Rural Circle, and 5 for five of the more populous talukas. The number of primary vaccinations was 114,430 and of re-vaccinations 4,330. Success was attained in 111,558 and 2,788 cases in each kind of operation, giving the percentages as 97·49 and 64·39. The rate of protection per 1,000 of population was 28·76. Each vaccinator vaccinated on an average 1,915 persons. Compared with the work in 1876-77 the progress is satisfactory. The total cost was Rs. 33,217-13-2, and the average cost per successful case was annas 4-8, or 3 pies more than for the preceding year. The number of primary and secondary operations in Dispensaries was 5,195 and 248, and 4,750, or 91·43, and 215, or 86·69 per cent., were successful. The number of deaths from small-pox was 3,345.

Surat Collectorate.

80. The Surat Collectorate has an area of 1,630 square miles, and a population of 607,087, and there are 9 vaccinators, another is required for the town of Bulsar. The primary vaccinations and re-vaccinations were respectively 14,671 and 778, and they were

successful in 14,225 and 390 cases. The percentages of success were 96·18 and 49·93, and 24·07 persons per 1,000 of population were protected. Each vaccinator on an average vaccinated 1,717 persons out of 67,454 in an area of 181 square miles. Deaths from small-pox numbered 859.

Broach Collectorate.

81. The Broach Collectorate extends over 1,363 square miles, and the population is 350,322. There are 6 vaccinators, and two more are required, one for the town of Jambusar, and one for the Hansot Petha. Each vaccinator has on an average 58,387 persons and 227 square miles. Primary vaccinations reached the number of 8,819 and re-vaccinations 259, resulting in 8,521 and 147 successful cases. The percentages of success were 95·77 and 56·53. The rate of protection per 1,000 of population was 24·74. Each vaccinator averaged 1,513 persons. The deaths from small-pox were 729.

Kaira Collectorate.

82. The collectorate of Kaira has an area of 1,561 square miles and a population of 782,733. It has 9 vaccinators, and each has on an average 86,970 persons and 173 square miles. Five others are required, one in each of the towns of Kaira, Borsad, and Kapadvanj; and one in each of the talukas of Nariád and Borsad. Of the primary vaccinations 21,251 were successful, and of the re-vaccinations 586. The successful cases were respectively 20,698 and 302. The percentages of success were 97·17 and 51·27. The rate of protection was 26·82 per 1,000 of population. Each vaccinator vaccinated on an average 2,426 persons. Small-pox deaths were 753.

Panch Máháls.

83. The Panch Máháls has a population of 240,743 and an area of 1,644 square miles. It has 5 vaccinators, and requires 2 more for the towns of Godhra and Dohad. Each vaccinator has on an average 48,149 persons and 329 square miles. Out of the 9,447 and 1,047 persons primarily vaccinated and re-vaccinated success was achieved in 9,311 and 706 cases, and the percentages of success were 97·75 and 67·43 respectively. Protection was afforded to 41·69 persons per mille of population. The average for each vaccinator was 2,099. 77 persons died from small-pox.

Ahmedabad Collectorate.

84. The Ahmedabad Collectorate has a population of 829,637 and an area of 3,844 square miles, and there are 14 vaccinators. Each vaccinator has on an average 59,260 persons and 275 square miles. Four other vaccinators are required, one for the town of Gogo and one for each of the more populous talukas of Daskrohi, Viramgám, and Parántij. Primary vaccinations numbered 26,102, and re-vaccinations 1,490. Of these 25,340 and 1,128, or 96·42 and 75·50 per cent., were successful. Protection was afforded to 31·90 per mille of population. Each vaccinator on an average vaccinated 1,971 persons. There were 927 deaths from small-pox.

Native States in the Eastern Guzerat Registration District.

85. Native States in the Eastern Guzerat Registration District have an area of 9493·50 square miles and a population of 1,143,028. The work in the Sachin and Jambughora States is performed by the Local Fund Vaccinators of Chorási Taluka in the former and of the Panch Máháls in the latter. There are altogether 19 vaccinators. The primary vaccinations were 33,835 and the re-vaccinations 164, and there were 33,169 and 110 successful cases respectively. The percentages of success were 98·03 and 67·07. Protection was afforded to 29·11 per mille of population. Each vaccinator on an average vaccinated 1,789 persons and had 500 square miles and 60,159 persons.

Progress in the Western Guzerat Circle.

86. The Western Guzerat Circle, which consists of the Native States of Kattywar and Pálanpur, has an area of 26,380 square miles and a population of 2,815,215. There are 2 Assistant Superintendents of Vaccination, 2 Clerks, 2 Government and 41 Native State Vaccinators, 43 in all, and 49 peons. Each vaccinator has on an average 65,470 persons and 613 square miles. Vaccination was performed in 9 Dispensaries. Primary vaccinations numbered 97,095, and re-vaccinations 3,646. Of these 89,566, or 92·24 per cent., in primary and 2,638, or 72·35, in re-vaccinations were successful. The rate of protection was

32·76 per 1,000 of population. The average number of vaccinations per vaccinator was 2,343. In the Dispensaries there were 1,734 and 196 persons primarily vaccinated and re-vaccinated, of whom 1,522 and 138, or 87·77 and 70·40 per cent., were successful. Average cost of each successful case was annas 5-4, or annas 1-1 more than in the previous year, and the total cost was Rs. 30,857-5-3.

Province of Kattywar.

87. The States of Kattywar have an area of 20,339 square miles and a population of 2,312,629. They now maintain 36 vaccinators. Each vaccinator has on an average 64,240 persons and an area of 565 square miles. There were 79,648 and 3,341 persons primarily vaccinated and re-vaccinated. Of these 73,356, or 92·10, and 2,377, or 71·14 per cent., were successful. Protection was afforded to 32·75 per mille of population. Each vaccinator averaged 2,305 operations.

Pálanpur State.

88. The population of the Pálanpur States is 502,586, and the area 6,041 square miles. There are 7 vaccinators. Each has on an average 863 square miles and 71,798 of population. Primary vaccinations and re-vaccinations numbered 17,447 and 305, and 16,210 and 261, or 92·90 and 85·57 per cent., were successful. Protection was afforded to 32·77 per 1,000 of population. Average number per each vaccinator was 2,536.

Progress in the Sind Registration District.

89. Sind has a population of 2,322,765 and an area of 49,307 square miles. There are 6 Inspectors of Sanitation and Vaccination, 2 Clerks, 5 Municipal, 43 Local Fund, and two Native State Vaccinators, and 58 peons. Each vaccinator has on an average 986 square miles and 46,455 persons; at least 16 more are wanted. Vaccination was performed at the various Dispensaries. There were 75,139 primary and 53,902 re-vaccinations. Of these 72,421 primary and 44,231 re-vaccinations were successful. The rate of success was 96·38 and 82·06 per every 100 cases, and that of protection was 50·22 per 1,000 of population together. Each vaccinator vaccinated on an average 2,581 persons. The average cost of each successful case was annas 4-9, or 6 pies more than in the preceding year. The total cost amounted to Rs. 34,951-0-9. In the Dispensaries there were 2,869 primary and 1,550 re-vaccinations. Of these 2,455, or 85·57 per cent., and 599, or 38·65 per cent., were successful. Deaths from small-pox cannot be given, as the returns for the first quarter of 1878 have not yet been received except for the Shikarpur District.

Kurrachee Collectorate.

90. The Kurrachee Collectorate has a population of 423,495 and an area of 14,092 square miles. It has 11 vaccinators, and 4 more are required. Each vaccinator has on an average 1,281 square miles and 38,500 persons. Primary vaccinations numbered 14,033 and re-vaccinations 12,802. Successful cases were 13,771, or 98·13, and 11,229, or 87·71 per cent., respectively. Protection was afforded to 59·03 persons per 1,000 of population. Each vaccinator averaged 2,440 persons.

Hyderabad Collectorate.

91. Hyderabad Collectorate has an area of 9,052 square miles and a population of 721,947. It has 13 vaccinators, and one more is required. Each vaccinator has on an average 55,534 persons and an area of 696 square miles. The primary vaccinations and revaccinations were respectively 21,622 and 12,065. Of these 20,741 and 9,314 were successful. The percentages of success in each kind of operation were 95·92 and 77·19 The rate of protection was respectively 41·62 per mille. Each vaccinator vaccinated 2,591 persons on an average.

Thar and Párkar.

92. The Thar and Párkar Districts have a population of 180,761 and the area is 12,729 square miles. There are 6 vaccinators and 1 more is required, so as to give one to each Rural Circle. Each vaccinator has on an average 30,127 persons and 2,121 square miles. The primary vaccinations and re-vaccinations were respectively 7,927 and 4,562, and 7,530 and 3,325 were successful. The percentages of success were 94·99 and 72·88. Protection was afforded to 60·05 per 1,000 of population. Each vaccinator has on an average vaccinated 2,081 persons.

Shikárpur Collectorate.

93. The collectorate of Shikárpur has an area of 8,813 square miles and a population of 776,227. It has 15 vaccinators and 5 more are required, one for the town of Lárkána and one for each of the Rural Circles, that have no vaccinator of their own. Each vaccinator has 588 square miles and 51,748 persons. The number of primary vaccinations was 22,432 and of re-vaccinations 20,531. Of these 21,810 and 17,418, or 97·22 and 84·83 per cent., were succesful. The rate of protection per mille of population was 50·53. Each vaccinator averaged 2,837 persons. Deaths from small-pox numbered 19.

Upper Sind Frontier.

94. The Upper Sind Frontier Districts have a population of 89,985, and an area of 1,913 square miles. There are 3 vaccinators. The primary vaccinations and re-vaccinations were 5,350 and 3,805, and of these 4,850 and 2,847, or 90·65 and 74·82 per cent., were successful. Protection was afforded to 85·56 per mille of population. Each vaccinator on an average vaccinated 3,052 persons. The area for each is 638 square miles, and the population averages 27,995.

Khairpur State.

95. The Khairpur State has a population of 130,350, and an area of 2,708 square miles. There are 2 vaccinators. The primary vaccinations were 3,775 and the re-vaccinations 137. The number of successful cases were 3,719 and 98, or 98·51 and 71·53 per cent., respectively. Protection was afforded to 29·27 per mille of population. The average number of vaccinations performed by each vaccinator was 3,052.

Progress in the Baroda Circle.

96. The State of Baroda has an area of 10,767 square miles, and the population is 2,000,225. The Chief Medical Officer of this State has 3 inspectors, 31 vaccinators and 34 peons, and the progress of vaccination has been most satisfactory. Each vaccinator has on an average 347 square miles and 64,523 persons. There were 15 Dispensaries, in which vaccination was carried on for the first time. There were 68,379 primary vaccinations and 82 re-vaccinations. Of these 61,371, or 89·75, and 51, or 62·19 per cent., were successful. The rate of protection was 30·77 per mille of population. Each vaccinator has on an average operated on 2,208 persons. The total cost was Rs. 11,342-1-3 and the cost for each successful case was annas 2-11, the same as that of the previous year. The dispensary officers have performed each kind of operation on 3,267 and 6 persons, of whom 2,958, or 90·54, and 1, or 16·67 per cent., were successful.

Progress in the Cutch Circle.

97. The State of Cutch has a population of 487,305, and an area of 6,500 square miles. There are now 15 vaccinators employed in it, each of whom has on an average 32,487 of population and 433 square miles. There are also 16 peons. Of the 13,690 primary vaccinations and 57 re-vaccinations 12,645, or 92·37, and 40, or 70·18 per cent., were respectively successful. The rate of protection per mille of population was 26·03. Each vaccinator has on an average operated on 916 persons. The total cost was Rs. 5,747-2-2, and the average cost per each successful case was annas 7-3, or 5 pies more than in 1876-77.

Progress in Aden.

98. There is 1 vaccinator in Aden, which has a population of 19,289, and an area of ·11 square miles. Of the 653 primary vaccinations and 6 re-vaccinations 567 and 5 were respectively successful. The percentages of success were 86·83 and 83·33, and 29·65 per mille of population protected. The total cost was Rs. 216 and the cost per each successful case was annas 6-1, or 9 pies less than that in the preceding year. The deaths from small-pox were 6.

Tour of Deputy Sanitary Commissioners and Superintendents of Vaccination.

99. During the year Dr. Nolan, the Deputy Sanitary Commissioner, Northen Deccan Registration District, inspected the Poona and Sholápur Collectorates and some parts of the Khandesh, Násik, and Ahmednagar Collectorates. He travelled over 5,331 miles, visited 117 villages, and inspected 7,111 children and 9 dispensaries. In the Southern

Deccan Registration District, Dr. Wall inspected the Collectorates of Dharwar and Kaládgi and some parts of the Belgaum and Satara Collectorates. During the months of February and March Dr. Bainbridge inspected 1,440 children in thirty villages around Satara. The total number of children inspected was 5,274 in 87 villages, and the number of miles travelled was 1,495. In the Konkan Registration District Dr. McAlister went through the Collectorates of Ratnágiri and Kanara and some parts of Tanna; and Dr. MacRury went through all the talukas of this collectorate, while he was in charge. The total inspections amounted to 7,764 children in 302 villages, and the number of miles travelled was 2,164. In the Eastern Guzerat Registration District Dr. Colah, before the rains, went through the Bulsar, Párdi, Bárdoli, and Mándvi Talukas and the Native States of Dharampur and Bánsda in the Surat Collectorate, and after the rains through the Ahmedabad Collectorate and the Native States of Mahi Kánta. He examined the work of 30 vaccinators and 5 dispensaries, visited 334 villages, travelled over 1,959 miles, and saw 11,624 children. Dr. Welsh in the Western Guzerat Circle went through the States of Sáyla, Dhrángdhra, Malia, Morvi, Nawanagar, Drapha, and parts of the Rájkot District, before the rains, and after the rains he passed through Jasdan, Sáyla, Wadwán, Limri, Botad, Sultanpur, Drapha, Dhoraji, Bhanwad, Khambalia, Purandhar, Bantwa, Madhaopur, Mangrol, Junágarh, and Virawal. He made 55 encampments, travelled over 1,121 miles in 107 days, visited 250 villages, and inspected 11,967 children. In the Sind Registration District Dr. Leggatt inspected 3,103 children, travelled over 2,410 miles, and visited 179 villages. He went through the whole of Thar and Párkar, many parts of the Shikárpur and some parts of the Kurrachee and Hyderabad Collectorates. Thus the five Deputy Sanitary Commissioners, and the Superintendent of Vaccination, Western Guzerat Circle, have inspected almost the whole of the Presidency. They travelled over 14,480 miles in 795 days, made 386 encampments, visited 1,269 villages, and inspected 46,843 children.

The Bombay Vaccination Act No. I. of 1877.

100. The Bombay Vaccination Act (No. I. of 1877) came into force on the 1st September 1877. Under Section 3 the city is divided into 6 districts, and each district is placed in charge of a Public Vaccinator and has two Public Stations for two or more wards, where once a week on a given day and hour gratuitous vaccination is performed. There is a central station which is open every day. In addition to the six Vaccinators there are two assistants to get information as to unprotected persons, and to ascertain the results of operations. It would be well if each district had for itself an Assistant and a Vaccinator.

The subjoined statement shows the number of each sex primarily vaccinated for the last eight years and for the seven months since the Act came into force. It will be seen that in these seven months the numbers for each sex are somewhat nearer:—

Years.	Persons Primarily Vaccinated.		Percentages.	
	Males.	Females.	Males.	Females.
1869-70	5,192	4,030	56·30	43·70
1870-71	6,729	4,771	58·51	41·49
1871-72	6,995	4,919	58·71	41·29
1872-73	8,586	5,946	59·08	40·92
1873-74	5,515	4,512	55·00	45·00
1874-75	7,292	5,873	55·32	44·68
1875-76	10,884	7,747	58·42	41·58
1876-77	9,087	6,988	56·52	43·48
April to August 1877	2,840	2,360	54·61	45·39
September 1877 to 31st March 1878	3,408	3,135	52·09	47·91

The following table shows a similar improvement amongst Christians, Musalmans, and Parsis, but not for "Hindus" and "Other Castes":—

Years.	Persons Primarily Vaccinated.					Percentages.				
	Christians.	Hindus.	Musalmans.	Parsis.	Other Castes	Christians.	Hindus.	Musalmans.	Parsis.	Other Castes.
1872-73	1,031	9,835	1,813	848	1,005	7·09	67·68	12·48	5·84	6·91
1873-74	844	6,394	1,256	665	868	8·42	63·77	12·52	6·63	8·66
1874-75	649	8,772	1,646	616	1,462	4·93	66·73	12·52	4·70	11·12
1875-76	1,333	10,280	3,302	2,159	1,557	7·15	55·18	17·72	11·59	8·35
1876-77	847	11,045	2,158	715	1,310	5·27	68·71	13·43	4·44	8·15
April to August 1877	249	3,761	535	73	582	4·79	72·33	10.19	1·40	1·19
September 1877 to March 1878 ...	710	3,580	920	920	413	10·85	54·72	14·06	14·06	6·31

More children under one year of age have been vaccinated this year than in the previous five years:—

Years.	Persons Primarily Vccinated.		Percentages.	
	Under 1 Year.	Above 1 Year.	Under 1 Year.	Above 1 Year.
1872-73	8,015	6,545	55·16	44·84
1873-74	6,545	3,482	65·27	34·73
1874-75	8,734	4,411	66·44	33·56
1875-76	10,293	8,338	55·24	44·76
1876-77	10,558	5,517	65·68	34·32
April to August 1877	3,641	1,559	70·02	29·98
September 1877 to March 1878...	4,559	1,984	69·68	30·32

There were 492 unsuccessful cases and 353 were vaccinated a second time, whilst during the previous five months these numbers were respectively 403 and 79.

SECTION VIII.

SANITARY WORKS, MILITARY.

This section consists of extracts taken from the Annual Cantonment Reports of the Executive Engineers in charge of military stations.

The actual outlay on Sanitary Works, Military, during 1877, amounted to Rs. 5,38,313. Rs. 3,82,307 were expended at Ahmedabad, principally on the barracks for the Royal Artillery and British Infantry; Rs. 39,645 were spent at Aden, mainly for improving the water-supply arrangements in Camp and Steamer point, Rs. 35,832 were spent on the Military buildings at Jacobabad, and Rs. 19,235 were expended at Poona, of which a considerable portion (Rs. 10,244) was spent on the European Infantry Barracks.

The following table shows the total amount spent on sanitary works (Military) at each station during the year 1877:—

Name of Station.	Actual Outlay in Rupees.	Name of Station.	Actual Outlay in Rupees.
	Rs.		Rs.
Poona	19,235	Asirgarh	8,822
Kirkee	3,452	Mehidpur	...
Ahmednagar	1,216	Neemuch	400
Sholápur	360	Nusseerabad...	964
Málegaon	...	Belgaum	81
Satara	2,892	Dharwar	7,974
Sirur	21	Kolhápur	...
Purandhar	69	Colába	4,437
Ahmedabad...	3,82,307	Bombay	9,383
Deesa	10,091	Tanna	...
Mount Abu	2,789	Deoláli	2,540
Baroda	2,621	Kurrachee	...
Rájkot	2,202	Hyderabad	187
Bhuj	60	Jacobabad	35,832
Surat	...	Aden	39,645
Mhow	733		
Indore	...	Total ...	5,38,313

POONA DIVISION OF THE ARMY.

STATIONS.

Poona.	Málegaon.
Kirkee.	Satara.
Ahmednagar.	Sirur.
Sholápur.	Purandhar.

POONA.

The Executive Engineer, Poona, Major A. R. Seton, R.E. reports that the following sanitary works were undertaken during the year 1877:—

Drainage at Ghorepuree.

A system of drainage, similar to that executed last year near the village of Ghorepuree for the purpose of carrying the water from the 10 feet culvert under the G. I. P. Railway to the river, by clearing out the natural water-course in the fields between the railway and the river, has been commenced in the fields immediately to the north of the Ghorepuree Family Quarters. These channels, when completed, will join that undertaken last year

and by their means the whole of the ground to the north and east of the Lines will be kept dry. Estimated cost Rs. 148; approximate outlay Rs. 148. 18 cross drains have been excavated in the compounds of the Officers Lines for the purpose of keeping them from getting water-logged, and the water is conveyed by their means to some of the large channels communicating with Byroba's Nulla.

The plain at the back of the village of Ghorepuree, near the soldiers' garden, has been drained by 4 cuts, one communicating with the large drain from quarry to Byroba's Nulla two with the village direct, and one with the plunge-bath drain. A long cut has also been made from the well which supplies the plunge bath to the drain which passes alongside to Byroba's Nulla. Estimated cost Rs. 188; approximate outlay Rs. 188.

The road gutters have been cleaned out and made to communicate with the large drains. Estimated cost Rs. 131; approximate outlay Rs. 131. The enclosed verandahs and covered passages of the hospital have partly been opened out by the removal of the upper portion of the walls, leaving only 3 feet from the pavement; the improvement, both as regards ventilation and the cheerful aspect afforded, is immense, and the work is being proceeded with. The buildings and enclosure wall, which were in front or to the west of the hospital, have been entirely removed, as also the rear enclosure wall and old dead house and cart shed.

New latrines and urinaries, at a greater distance from the main building, are being constructed, and, on completion, the old ones, which are thoroughly saturated with filth, will be demolished. For improving the ventilation in the large wards, the doors, obtained from the altered verandahs will be made use of; a door being substituted for every alternate window. The passage between the two easterly wards is to be done away with, one partition wall being pulled down and the space added to the ward. Estimated cost Rs. 4,782; approximate outlay Rs. 4,782.

The 4 large windows of the Ophthalmic ward have been brought down to the pavement level and fixed Venetian fan-lights placed in the spaces above. The arch heads of the 2 doors have been taken out and revolving fixed louvre fans substituted. Estimated cost Rs. 125; actual outlay Rs. 125.

The road to the married quarters, which cut off a considerable portion of the hospital compound, has been carried by a curve further to the north east, and the space thus obtained has been utilized as a site for the cart shed and is available for any other building which may be required. The servants' quarters, which are in close proximity to the hospital, will be demolished as soon as the new quarters are ready, and the entire rear of the hospital will be opened out as already the front has been. The ventilation of the twelve large barracks (old set) is being improved by removing the Sergeants' rooms and washing rooms from the south, and thus opening up the whole verandah and increasing the length of each barrack about 13 feet.

Three large doors are being substitued for the old shuttered windows in each of the long walls and one in the end wall of the same barrack. Estimated cost Rs. 10,244; actual cost not yet known, the work being in progress.

Europeau Infantry Barracks at Wanowri.

The upper storied barracks (old set) had all Venetian shutters of windows fixed. They have been made to open and shut for light and ventilation and the rectangular fanlights have been made to revolve.

Pipes are now being laid to each of the buildings throughout the Wanowri Lines for water supply. Estimated cost Rs. 1,100; actual outlay Rs. 1,099.

Quarter Guard.

The guard room accommodation was insufficient. It has been increased by removing the cells and extending the interior space. Estimated cost Rs. 200; approximate outlay Rs. 200.

Right Flank Hospital.

The verandah of the west ward, which was in a dilapidated state, has been repaired and widened at both the ends and the west wards have been improved by opening doors in the walls and removing an enclosure wall in the inner verandah which obstructed ventilation and light. Estimated cost Rs. 2,400 ; actual outlay Rs. 2,318.

Cantonment Sudder Bazar.

Much improvement has been effected in the Suddur Bazar during the past year, but much remains yet to be done to improve its Sanitary condition.

KIRKEE.

SANITARY WORKS UNDERTAKEN DURING THE YEAR 1877.

Alterations to the Latrines at the Royal Artillery Hospital.

There being no proper urinals for the use of the patients of the Royal Artillery Hospital, the urine pans had to be kept in the latrines (the latter not being properly ventilated) which caused a very bad smell; two urinal sheds 10′ × 5′ and 12′ 3″ × 6′ 3″ were consequently built on the ontside of the hospital but attached to it by the passages leading to the latrines. Estimated cost Rs. 436, actual outlay Rs. 358.

Providing Ventilators to the Latrines at the Royal Artillery Hospital.

The roofs of the Royal Artillery Hospital Latrines having no ventilators, the walls were raised and roof ventilators made. Estimated cost Rs. 506, actual outlay Rs. 487.

Special Repairs to the Riding School.

The roof of the riding school for the Royal Artillery was provided with a continuous ventilator, and the roof timbers were also renewed where necessary. Estimated cost Rs. 2,833 ; actual outlay Rs. 2,607.

(Signed) C. A. GOODFELLOW, Lieutenant-Colonel, R.E.,
Executive Engineer.
Poona and Kirkee.

AHMEDNAGAR.

Mr. Howard, C.E., Executive Engineer, Ahmednagar, reports that the works that come under the head of "Sanitary" carried out by the Public Works Department in the year 1877, were few and insignificant.

They are as follows :—Bhingar Military Aqueduct, dipping well, stone and lime. Estimated cost Rs. 84; actual outlay Rs. 83-14-2. Constructed for the use of the Musalman community visiting the Alumgirka Durga.

Native Infantry Lines.

Improving gutters on east side. Estimated cost Rs. 199; actual outlay Rs. 166-10-0.

The sides of the gutter having fallen in were re-built and the flow of waste and other water secured.

In Kotlah. Draining the Kotlah. Estimated cost Rs. 164; actual outlay Rs. 178-14-10.

Some low ground, on which water lodged, has been filled in, and a masonry drain constructed to lead off rain water.

Old Artillery Lines.

Constructing a surface drain in rear of two blocks of patcherries. Estimated cost Rs. 353; actual outlay 350-12-4.

These drains were constructed to carry off waste water from the bath-rooms which formerly flowed over the ground or soaked into it; they are of masonry, set in chunam, open at the top and lead to cess-pits from which the water is removed by hand labour.

European Infantry Lines.

Removing 24 ventilating plates in the latrines for quarter-guard and putting in their place one iron-barred window. Estimated cost Rs. 13; actual outlay Rs. 12-12-2.

These iron ventilating plates were small and on a level with the ground; to ensure more perfect ventilation, they were removed and an iron window $2' \times 2\frac{1}{4}'$ substituted.

Old Artillery Lines.

Providing bath-rooms in the ablution-room at Ahmednagar. Estimated cost Rs. 480; actual cost Rs. 422-8-0.

This work consists of a bamboo-walling on a teak wood framing to afford spaces for 2 bathing tubs forming 2 rooms, each provided with a door.

Privacy and convenience have been afforded by this arrangement.

SHOLA'PUR.

Mr. Shannon, C.E., Executive Engineer, reports that the following sanitary works were undertaken during the year 1877:—

Clearing a portion of the Moti Bagh Tank.

The old tank, which was silted up, has been cleared by removing the silt from the bottom. The earth obtained has been utilized in raising and widening the Moti Bagh embankment and in raising the level of the marsh, a height of 5 feet over a surface of 3 acres, drainage being provided.

This work was carried out as a famine relief work. Cost Rs. 44,350.

MA'LEGAON.

Major Mander, R.E., Executive Engineer, Khandesh District, reports that the only sanitary work undertaken during the year 1877 was the filling up of an old disused well in the bazar.

SATARA.

Lieutenant Davidson, R.E., Executive Engineer, Satara, gives the following information regarding the sanitary works undertaken during 1877:—

(1.) Sinking well for the use of the Native Infantry Lines.

General Description.

The well is of irregular semicircular form having its steming built up so far as possible following the line of excavation and on such of the rocky strata as were deemed sufficiently secure to insure its proper stability.

The well is 28′ deep and the diameter of the lower portion excavated in hard rock is 24′. The upper portion, which is of masonry steming, is 36′ diameter. The top of the well is surrounded by a parapet and paving is put down round it. Windlasses for raising the water are provided. Estimated amount Rs. 2,803; actual outlay Rs. 2,802.

(2.) Deepening the well in the Commissariat yard.

General Description.

The original well was 51¼ feet deep and 20 feet in diameter at the top and 16′ at the bottom. The upper 14 feet below the surface are supported by masonry steming. There being only 4′ of water in the bottom of the well, it was excavated to a further depth of 5½ feet and was also increased in width at the bottom. Blasting was required for this work. The rock being hard, no masonry was required. Estimated amount Rs. 177; actual outlay Rs. 90-4-4.

SIRUR.

Captain Seton, R.E., Executive Engineer, P. D., gives the following information regarding the sanitary works undertaken during the year 1877 :—

A grass hut was erected at a cost of Rs. 21-8-0 for small-pox patients. Beyond this no other sanitary work was carried out during the year.

PURANDHAR.

Captain Seton, R.E., Executive Engineer, Poona Districts, reports that the only sanitary work undertaken during the year was the converting of one of the small rooms in the Hospital Sergeants' Quarters into a bath-room. A portion of a room measuring 10′ × 6′ 9″ was screened off for this purpose by a partition wall 8′ 6″ high provided with an entrance door 6×3, and a masonry bath 6′ 9″×2′ 6″ was built at one end, lined with Portland cement and provided with inlet and outlet pipes. Estimated cost Rs. 69; actual outlay Rs. 68-11-2.

NORTHERN DIVISION OF THE ARMY.

STATIONS.

Ahmedabad.	Rájkot.
Deesa.	Bhuj.
Mount Abu.	Surat.
Baroda.	

AHMEDABAD.

Captain Cruickshank, R.E., Executive Engineer, Ahmedabad Districts, reports that the following sanitary works were undertaken during the year 1877 :—

I.—Barracks for Royal Artillery.

Out of the three barracks, with subsidiary buildings, two were built last year, and the remaining one is nearly completed with the exception of minor details. This barrack affords the accommodation for 44 men, and it is in every respect constructed according to the description and specification of the other two. Full particulars were given in the report of the last year.

The following subsidiary buildings to this barrack are also built :—1 cook-room, 1 lavatory with bath room, 1 latrine according to the standard plans, and all of pucka masonry with double-tiled roof, &c. A passage is provided from the rear verandah of Barrack to lavatory.

The punkhas in Barracks Nos. 1 and 2, which were reported as not put up in the report of the last year, have now been suspended. Estimated cost of one barrack, with subsidiary buildings, Rs. 68,430. Outlay up to 31st December 1877 on Barracks Nos. 1, 2, and 3 Rs. 1,89,290.

II.—Family Quarters with out-houses for Royal Artillery.

These are in three blocks, two of which are nearly completed and the third is in progress. Each block affords accommodation for six families, and all the dimensions are in accordance with the standard plan. Each quarter consists of two rooms, one 16′ × 14′ in front and the other 14′ × 10′ in rear, with a bath-room 7½′ × 6′ for each family. The main building is 94½ feet long and 30½ feet broad and 18 feet in height to ceilings, with a verandah 12′ 6¾″ all round. Each of the block is provided with 2 cook-rooms, each 13′ × 12′, with two servants' Quarters, each 13′ × 8′, and 4 privies (two at each end) in rear, the latter being approached by covered passages. The masonry of these buildings is of burnt brick and lime. The floors are paved with flat tiles on a bed of concrete 6″ deep, and roofs double-tiled with Howard's ridge ventilators.

The other description of the work is similar to that of the barracks. Estimated cost for 3 blocks Rs. 73,844; outlay up to 31st December 1877, Rs. 43,492.

III.—Barracks for ½ Company of British Infantry.

These are two in number, one of which was completed in March 1877, and it is a single-storied building for 44 men and two Serjeants, and is of exactly the same plan and construction as the Royal Artillery Barracks. The out-houses are also similar, except the cook-room, which is for a full Company instead of ½ Company, there being only one cook-room for this.

The other barrack is nearly completed with the exception of minor details and it affords accommodation for 48 men and 2 Serjeants.

The out-houses, such as latrine, lavatory and passage to lavatory and a urinary are also nearly completed. The construction and dimensions are similar to those of the Royal Artillery Barracks. Estimated amount for 2 Barracks and out-houses Rs. 1,42,706; outlay up to 31st December 1877 on two barracks Rs. 1,26,670.

IV.—Expense Magazine for British Troops.

This building has been completed and it consists of a single vaulted chamber 14′ × 14′ and 21 feet high in the clear with a verandah at one end raised 3 feet from the ground. It is also surrounded by compound wall 10′—6″ high, and is provided with a lightning conductor which is of 3¼″ copper rod and has two points; it is carried underground in charcoal for a distance of 30 feet. The masonry is of brick and lime, plastered and white-washed inside. The floor is of ½″ teak plank on joists and that of the verandah is paved with stones, and it has a single-tiled roof on round teak rafters over it.

The Magazine is supplied with 3 trestles according to regulation pattern. A small foot bridge over the water-course which comes between the quarter-guard and Magazine has been constructed with a road-way of teak plank on T iron supports with teak hand rail. Estimated amount Rs. 4,506; outlay Rs. 4,251.

V.—Additions and alterations to the Quarter Guard for British Infantry.

The following improvements have been made:—

The floor has been raised 3′. The walls which were 14′ have been increased to 18′ above the new floor level, and the detention room has been lengthened 6′.

The quarter-guard now consists of a single-storied building, with a general room and a detention room. The former is 30′ × 20′ × 18′ and the latter 16′ × 20′ × 18′ with a verandah 10 feet wide all around.

New doors and clerestory windows have been provided as well as plank-ceiling. The roof has been re-fixed and Howard's ridge ventilator provided. The floor is paved throughout, and iron railing similar to that of barracks is provided between the masonry pillars of verandah. Estimated amount Rs. 5,558; outlay Rs. 5,558.

VI.—Cattle Shed and Slaughter Yard.

This building is nearly completed, and it affords accommodation for 60 bullocks and 150 sheep. The accommodation for the bullocks is provided in a shed 90′ × 20′

with a yard 140′ wide in front, and that for the sheep in a shed 100′ × 12′ with a yard 90′ wide. The width of the shed is according to the standard plan and area of 30 square feet for each bullock and 8 for each sheep is also provided. A yard 56′—9″ wide and the same length as that for sheep is provided for the storage of fodder and for huts for the contractor's establishment. A watering trough is provided to each of the cattle yards supplied by earthen pipes from the well, which also supplies water to the slaughter yard. The cattle yard is enclosed by galvanized iron fence 5′ high, along which a cactus hedge has also been planted. Iron gates are provided.

The slaughter yard is 120′ × 81′ in interior dimensions, surrounded by a wall. In the south-east corner there is a hanging shed 26′ × 16′ × 16′ with a block room from which the meat will be delivered through the door in outer wall, and a hanging verandah is provided for protection from sun and rains, and gallows for hanging six bullocks and 20 sheep at 3 and 1 running feet respectively. The slaughter stand is 30′ × 15′ and the gallows for hanging the carcasses after slaughtering have a stone drain below to carry off blood, &c. A small cistern, with paving on two sides, has been provided for water for washing the slaughter stand, &c.

A well, 6′ in diameter, has been constructed with burnt brick and lime at the distance of about 600′ from both sides of the cattle and slaughter yards.

The masonry throughout the building is of brick and lime, and that of the roof double-tiled, and the verandah single tiled. Howard's ridge ventilator has been provided over the roof of the hanging shed, and the wood work is of best Moulmein teak. Estimated amount Rs. 13,977; outlay up to 31st December 1877, Rs. 10,384.

VII.—Latrine for the 2nd Class Hospital servants attached to the temporary Hospital for Royal Artillery.

As there was no accommodation made for the latrine for this class of native followers attached to the Royal Artillery Hospital, a latrine 13′—10½″ long, 10′—3″ broad externally, has been built of a temporary nature, and it is divided into two equal parts, one for males, and the other for females, by a partition wall in the centre, and each has two seats, with a screen wall 6′ high. Estimated cost Rs. 389; outlay Rs. 377.

VIII.—Armourer's shop for Native Infantry Regiment.

This building has been almost completed with the exception of minor details. It contains 2 workshops, one 20′ × 18′ with a bench and cupboard, arm and tool racks, and the other is 12′ × 18′, which contains a forge, browning trough with furnace separated by cross wall from the drying room 12′ × 5′, which is fitted with racks for gun barrels and warmed by the flue of the browning trough furnance, &c., according to the standard plan.

The masonry of the building is of burnt brick and lime, and the roof double-tiled. The floor is of stone on a bed of 6″ concrete, and the wood work is of best teak Moulmein. Estimated cost Rs. 3,200; outlay up to 31st December 1877, Rs. 2,212.

IX.—Additions and alterations to the old married men's quarters Nos. 12, 13 and 20 to utilize them as Barrack Master's Office and Stores.

Out of these three blocks, block No. 20 is put in hand and it will be used as Barrack Master's Office when finished, the additions in other blocks will be made when handed over to this department. Estimated cost Rs. 1,091; outlay up to 31st December 1877, Rs. 73.

NOTE.—The Expenditure shewn up to 31st December 1877 in this report, does not include the payment for work done in December 1877.

DEESA.

Mr. J. M. Span, C. E., Executive Engineer, Abu and Deesa Division, reports that the following Sanitary works to have been undertaken at Deesa during the year 1877:—

Royal Artillery.

It was decided by the authority concerned that the punkahs in the four Barracks and Hospital of the Royal Artillery at Deesa should be altered from the ordinary swing into the Pendulum system. The work was estimated to cost Rs. 302 and completed at a cost of Rs. 296.

The Royal Artillery Pharmacy at Deesa was in a dangerous state through the end wall giving way, so that it had to be taken down at once. The wood work in the roof was all destroyed by white ants so that it became necessary to renew it. The Gable was likewise rebuilt. The estimated cost of the work was Rs. 414, and it was completed at an outlay of Rs. 395.

A new drain was constructed in the Royal Artillery Lines at a cost of Rs. 59.

New iron bands were put round the pillars of the Harness rooms of the Royal Artillery at Deesa at an outlay of Rs. 62.

A portion of the Sick Horse Stable of the Royal Artillery at Deesa was converted into loose boxes. The estimated cost of the work was Rs. 151, and the cost at which it was completed, Rs. 150.

The old masonry drain that carried water from the plunge bath to the soldiers' garden in the Royal Artillery Lines at Deesa was too small for the required purpose. It was removed entirely and another large masonry drain constructed in its place. The estimated cost of the drain was Rs. 302, and it was completed at a cost of Rs. 292.

An additional shed for 6 more wagons was required for the Royal Artillery stationed at Deesa. The estimated cost of the work is Rs. 1,910, and the outlay to end of December, Rs. 664. The work is in hand and will be completed within the current official year.

European Infantry Lines.

Certain alterations and additions were recommended by the Military authorities to be carried out to Staff Serjeants quarters viz.,—enclosing a portion of the side verandah to form a new bath-room converting the present bath-room into a living room, and raising the ceiling cloths in the main rooms. These were estimated to cost Rs. 1,655, and completed at a cost of Rs. 1,648.

The alteration of the punkahs in the 18 Barracks and two Hospital Wards of the European Infantry Regiment from the ordinary swing to the Pendulum system, which was recommended by the authorities concerned, was estimated to cost Rs. 1,314, and the actual cost at which it was completed was, Rs. 1,290.

Three new glazed windows were provided to the quarters occupied by the Quarter-Master Serjeant and the position of the front door altered which was most desirable as the building was so ill ventilated and lighted as to be quite unfit for the occupation of it by an European Officer. The estimated cost of the additions was Rs. 200 and completed at Rs. 174.

The Arm Racks in the European Infantry Lines at Deesa were altered to suit the Henry Martini Rifles. The estimated cost of the work was Rs. 128 and completed at Rs. 130.

A chunam gutter made to carry off the waste water from the tatties placed against the doors and windows of Barracks occupied by the European Regiment at Deesa. Estimated cost Rs. 37; outlay incurred Rs. 38.

A window of the Guard-Room attached to the Hospital of the European Infantry Regiment was converted into half-glazed and half-pannelled door. Estimated cost Rs. 54; outlay incurred Rs. 51.

A Forge was fixed in the Armourer's shop of the European Infantry Regiment, Deesa. Estimated cost Rs. 20; expenditure incurred Rs. 17.

As recommended by the Assistant Inspector of Gymnasia in his Inspection Report, No. 60 of 19th March 1877, some of the openings of the Gymnasium at

Deesa were filled up. The estimated cost of which was Rs. 178 and the expenditure incurred Rs. 174.

. Some of the apparatus in the Gymnasium were also repaired (as recommended in the report above alluded to). The cost of repairing them was Rs. 20; estimated cost Rs. 72.

Native Troops.

A zenana compound wall constructed in front of the two Hospital Assistants' quarters attached to the Native Cavalry Hospital. Estimated cost Rs. 189; expenditure Rs. 128.

The masonry drain leading from a well in the 2nd Light Cavalry Lines to the Musalmans' garden was renewed. Estimated cost Rs. 66; outlay incurred Rs. 66.

The old drain leading from one of the wells in the Native Infantry Lines, which consisted of earthen pipes, was removed and a masonry drain substituted instead. Estimated cost Rs. 142; outlay incurred Rs. 142.

Barrel Racks supplied for use in the Armourer's shop of the Native Infantry Regiment. Estimated cost Rs. 14; expenditure Rs. 14.

New Arm Racks supplied to the Guard Rooms of the Native Infantry Regiment, Deesa. Estimated cost Rs. 45; outlay incurred to end of December 1877, Rs. 35.

A Groyne erected, and two new channels cut in the Nullah near the Native Infantry Lines so as to turn the course of the stream, which was likely to destroy some of the houses and fine trees. Estimated cost Rs. 91; actual cost of the work Rs. 91.

The Rifle Range of the Native Infantry Regiment at Deesa was prolonged from 600 to 800 yards. The estimated cost of which was Rs. 488; and the actual cost of the work Rs. 465.

The Platforms of the Native Infantry Regiment Rifle Range were raised as desired by the authority concerned. Estimated cost Rs. 405; completed at Rs. 390.

Commissariat Building.

A hanging shed constructed for the slaughter-house. Estimated cost Rs. 1,632 and completed at Rs. 1,559.

General Cantonment Works.

New groynes constructed to protect the bank of the River. Estimated cost Rs. 1,842; expenditure incurred Rs. 1,698.

Magazines.

Two new compound gates fixed to the Magazines, and lightning conductor fixed on the small one. The work is in hand. Estimated cost Rs. 224; outlay to end of December 1877, Rs. 112.

MOUNT ABU.

Mr. John Span, C. E., Executive Engineer, reports that the following works were undertaken during the year 1877.

European Infantry Lines.

1. Some of the windows of the Canteen were enlarged and a door closed. Estimated amount Rs. 27-0-0; actual outlay Rs. 19-7-9.

2. The Arm Racks in the Barracks and Guard Rooms were altered at the request of the Officer commanding the detachment to suit the Henry Martini Rifles. Estimated amount Rs. 29-0-0; actual outlay Rs. 20-15-0.

3. A refuse pit for the use of the Sanitarium Hospital was dug out. Estimated amount Rs. 19-7-0; actual outlay Rs. 24-6-0.

4. The old thatched roof of the bungalow occupied by the Staff Medical Officer was considered to be unsafe, and the rottenness of the timber in it necessitated the entire roof to be dismantled and the building to be re-roofed with double tiles with new jungle wood framing. Estimated amount Rs. 1,881; actual outlay Rs. 1,588. The work is in hand.

5. The old roof of the Abu Lawrance School at Abu was of a kutcha construction throughout. The timber work of the roof consisted of jungle wood which shewed signs of being in an advanced stage of decay. It was therefore proposed to remove the old roof entirely and to re-roof the building with double tiles on teak wood framing, and a room of 30 feet added to it as an increase in length to the boy's dormitory, and certain additions and alterations which were considered very desirable were effected in the original structure. Estimated amount Rs. 18,898; actual outlay 1,138. The work is in progress.

BARODA.

Major W. Manson, R. E., Executive Engineer, Surat and Broach Collectorates, reports that the following works were undertaken during the year 1877.

I.—Making additions and alterations to the Quarter Guard of the European Regiment.

The walls of this Guard Room were very low. They are now raised so as to measure 12 feet from the floor to the outer side of the tie beam; in addition to this a continuous ridge ventilator (Howard's Patent) has been put up for the escape of heated air. Estimated amount Rs. 1,118; actual expenditure Rs. 1,085.

II.—Making certain additions and alterations to the Guard Rooms of the Royal Artillery.

A continuous ridge ventilator (Howard's Patent) has been put up for the escape of heated air. Estimated amount Rs. 440; actual expenditure Rs. 435.

III.—Removing the latrine in rear of the non-commissioned Officer's Quarters and replacing a moveable commode in the bath-room.

A detached latrine has been removed as it was considered by the Medical Officer to be unwholesome, and a commode was placed in the Bath-room instead. Estimated cost Rs. 21; actual expenditure Rs. 10. (By Public Works Department.)

IV.—Removing a temporary latrine and enlarging and rebuilding the same on another site for the use of Royal Artillery.

The old latrine has been removed and rebuilt on a spot opposite the Royal Artillery, Guard Room. The latrine as rebuilt is 33′ × 10½′ × 7′, containing 12 seats with a dry earth shed 7½′ × 8½′ × 7′. Estimated amount Rs. 366; actual expenditure Rs. 365.

V.—Covering wells in the Royal Artillery Lines.

Five wells have been covered with teak wood planks fixed to joists laid across the frames at the mouths of the wells. Trap-doors have been provided to open the wells to draw water. Estimated amount Rs. 205; actual expenditure, Rs. 204.

VI.—Making certain additions and alterations to the quarters for Acting Quarter-master Serjeant of detachment 2/15 Regiment.

A small ridge ventilator 12′ long has been put up in the centre of the roof, and the opening covered with five wire netting.

A portion of the varandah is enclosed to form a bath-room 7¼′ × 6′ and a moveable commode placed in it.

A new cook-room 8′ × 8′ in interior dimensions with a small lift ventilator over the fire-place has been constructed. Estimated amount Rs. 523; actual expenditure Rs. 522.

RAJKOT.

Captain Singleton, Superintendent, Public Works Department, Rájkot, reports that the following Sanitary works were undertaken during the year 1877 :—

A well near the 28th N. I. Lines for the use of the troops at Rájkot was sunk. Estimated cost Rs. 2,202; actual cost Rs. 2,202.

A meteorological shed was constructed. Estimated cost Rs. 100; actual cost Rs. 100.

BHUJ.

Captain Hume, Superintendent, Public Works Department, reports that the only Sanitary work carried out during the year was the addition of a bath-room to the Native Infantry Hospital at Bhuj. Estimated amount Rs. 60; actual expenditure Rs. 50.

SURAT.

Major Manson, R. E., Executive Engineer, Surat and Broach Collectorates, reports that no Sanitary works were undertaken at Surat during the year 1877.

MHOW DIVISION OF THE ARMY.

STATIONS.

Mhow	Mehidpur.
Indore	Neemuch.
Asirgarh	Nusseerabad.

MHOW.

Major Swetenham, Executive Engineer, Mhow Division, reports that no important Sanitary works have been considered necessary or carried out during the year in any of the works in charge of the Public Works Department.

New Barracks are now being constructed for a Battery of Horse Artillery and will be available for occupation in October 1878.

The only minor Sanitary works considered necessary and carried out during the year have been—

(1) Improving platforms and drains to five wells in the N. I. Lines at Mhow. Estimated cost, Rs. 310; actual cost, Rs. 288.

(2) Planting trees in the low ground to windward of the Cavalry Barrcks. Estimate, Rs. 375; cost, Rs. 445.

INDORE.

The Overseer in the Public Works Department reports that no Sanitary works were undertaken at Indore during the year 1877.

ASIRGARH.

Captain Dunlop, Executive Engineer, Hosangabad Division, reports that the following Sanitary works were carried out at Asirgarh during 1877.

Cleaning out Mama Bhanja Tank for the second time.

This work was considered necessary and was carried out at a cost of Rs. 6,940. It was thought that the water of the tank was unfit for drinking purposes after the first cleaning, owing to the dirt of bungalows in the drainage area of the tank being washed yearly into the tank, and a masonry catch water drain having been made to prevent this by the advice of the Sanitary Commissioner, C.P., the water was again thrown out so as to give the scheme a fair chance of success. The result has not as yet been much better than before, and it is now proposed to use the water for all purposes except drinking. Filtering the water through a Macnamara's filter has not answered.

2. The Sukkur well was pumped out and cleaned at a cost of Rs. 124. This is the only well in the fort from which water for drinking purposes is used, but its water is condemned by the Chemical Analyser, Bombay, and the cleaning of the Sukkur tank is to be carried out as it is the reservoir for supplying the well. The well is a natural filter.

3. Repairs to dry stone walls of the Sukkur and sepoys' tank were made to prevent passage of men, animals, and to keep out all kinds of matter, hurtful to the tank.

4. Trees were cut down that were growing in the walls of the tank and destroying them. The roots, however, could not be extracted, and the work will require to be done as soon as leaves appear, unless the roots are eradicated once for all. The cost was Rs. 50.

5. A requisition for Rs. 121-8-0 has been sanctioned for covering the well lately excavated in the ravine of the Mama Bhanja Tank at the back of the house, formerly the property of Surgeon-Major O'Kearney, and sold by him to Government. This well contains the only water which falls into it during the rains and has no other supply. The water is reported as good, and it is desirable to keep out dirt as much as is possible.

Clearing out Sukkur Tank.

6. This tank already mentioned in para. 2 is being cleaned out and the mud being taken from it as the water lowers by use and evaporation, &c. Rs. 200 only have as yet been expended on it, but more will be required probably up to Rs. 5,000 or 7,000, as the capacity of the tank is unknown and as it has not been properly cleaned out before. The object of cleaning the tank is to improve the water in the filter well which has been condemned as unfit for drinking purposes by the Chemical Analyser.

Latrine for married quarters.

7. This work was much required as only one existed before at the far end of the two married quarters. This cost Rs. 1,161. The walls are of corrugated iron and wooden posts, floor of asphalte, roof single-tiled.

Latrine for State prisoners.

8. The State prisoners' quarters is situated above the Sukkur tank, and it was to prevent this latter being fouled, that a proper latrine was made. This cost Rs. 298. The roof is single tiled. The walls are of wattle and dant, and masonry pillars are at corners; floor pucka, well tarred over seats of masonry.

Public Works Department Latrine.

9. This work is similar to that of the State prisoners' latrine. Estimated cost Rs. 249. It was made to relieve the Native Infantry Lines latrine from work people, and was very necessary.

MEHIDPUR.

Lieutenant W. H. Lyster, Staff Officer, Mehidpur, reports that no Sanitary works were undertaken during the year 1877.

NEEMUCH.

Captain G. R. Gibbs, Executive Engineer, N. D., reports that the following Sanitary works were undertaken at this station during the year 1877.

Well Coverings.

As a Sanitary measure, several of the wells in the Cantonment and in the Sudder Bazar have been covered. Two to four openings have been left in these coverings to serve as draw-holes.

The coverings consist of stone slabbing resting on two or more stone beams which are let into the opening of the wells and under the parapets. In some cases coverings of wood or stone have been provided for the draw-holes. The upper surfaces of the well coverings are generally at a little higher level than the platforms round the wells so that they may be drained on the platform.

Well Coverings in Cantonment.

Estimated cost for 11 wells, Rs. 460; actual cost for 10 wells, Rs. 400.

Wash-house drains near European Infantry Lines.

Small alterations have been made in the concrete or masonry drains from wash-houses on petty requisitions as required; but there is no proper outfall for these drains, the water finding its way into ditches and small channels and resting there. Though the fall is sufficient, yet drift rubbish soon closes up the channel here and there. It would seem, therefore, useless to extend them, and provision might be made for scouring them occasionally, the water being carried from the outfall to the nearest gardens.

NUSSEERABAD.

The Executive Engineer, Nusseerabad Division, reports that the following Sanitary works were carried out during the year 1877:—

Dismantling Nos. 51 and 52 Native privies in European Infantry Lines and re-building them in the Royal Artillery Lines. Estimate, Rs. 487. Expenditure, Rs. 415. Repairing and cleaning out tanks in gardens in European Infantry and Royal Artillery Lines. Estimate Rs. 24; expenditure Rs. 20.

Cleaning and repairing wells in European Infantry and Royal Artillery, Native Infantry and Native Cavalry Lines. Estimate Rs. 550; expenditure Rs. 529.

Cleaning all road drains throughout the Cantonment partly charged to road repair, and partly done by prison labour.

BELGAUM DISTRICT.

STATIONS.

Belgaum. | Dharwar. | Kolhápur.

BELGAUM.

Major Peyton Phelps, R. E., Executive Engineer, Belgaum Districts, reports that the following Sanitary works were undertaken during the year 1877:—

General Description.

Alterations to the Latrines of the Lock Hospital at Belgaum.

The ground in front of the seats of the latrines has been flagged with stone and lime having a slope of .6" towards the back; the old drain of ground stones removed, and a new one constructed with flag stones and chunam. Three iron pipes, each 2½ feet in length, provided to carry the sewerage water into the iron pans placed at the ends of the drains; and 2 spare pans provided for replacing the former when they are full. Two cesspools constructed for the iron pans. Estimated cost Rs. 84; actual cost Rs. 81.

DHARWAR

The following works have been completed during the year 1876-77.

New Military Lines

1. A new Hospital of stone and lime masonry and in accordance with standard plan with necessary out-houses and servants' quarters of sun-dried brick and mud has been completed. Sanctioned estimate, Rs. 19,360; expenditure for 1876-77, Rs. 2,182.

2. Native Doctors' quarters and cook-house of sun-dried bricks and mud with a privy of stone and lime masonry in accordance with the standard plan. Sanctioned estimate, Rs. 2,290; expenditure for 1876-77, Rs. 177.

3. Hospital Guard Room built of stone and mud pointed with chunam in accordance with the standard plan. Sanctioned estimate Rs. 606; expenditure for 1876-77, Rs. 229.

4. An out-door lavatory of stone and lime masonry near the Hospital consisting of a circular cistern 5 feet diameter and 3½ feet deep with a paved circuit and two enclosures unroofed 7′×4′ and 5½ high for private ablution. Sanctioned Estimate Rs. 504; expenditure for 1876-77, Rs. 53.

5. Two Infection Wards 30′×12′ each, inside measurement built of sun-dried bricks and mud with tiled roof and ventilators. Sanctioned Estimate, Rs. 2,076; expenditure for 1876-77, Rs. 814.

6. Dead House 12′×12′, inside measurements of sundried bricks and mud in accordance with the standard plan. Sanctioned Estimate Rs. 553; expenditure for 1876-77 Rs. 245.

7. Armourer's shop of sun-dried bricks and mud in accordance with the standard plan. Sanctioned Estimate, Rs. 2,510; expenditure for 1876-77 Rs. 1,973.

8. Magazine and Magazine compound wall built of stone and lime masonry in accordance with the standard plan. Sanctioned Estimate Rs. 3,430; expenditure for 1876-77, Rs. 1,313.

9. School House of sun-dried bricks and mud consisting of one room 60′×24′, one room 22′×24′ and two rooms each 15′×11′. Sanctioned Estimate Rs. 5,301; expenditure for 1876-77, Rs. 988.

10. A well near Bazar Native Infantry Lines, 8 feet diameter and 84 feet deep, completed. Sanctioned Estimate, Rs. 1,933; expenditure for 1876-77, Rs. 6.

11. A well 7½′ diameter on the south side of N. I. Hospital is under construction, and will be completed in 1877-78. Sanctioned Estimate, Rs. 1,307; expenditure for 1876-77, none.

KOLHA'PUR.

No Sanitary works were undertaken at this station during the year 1877-78.

BOMBAY DISTRICT.

Colaba.	Tanna.
Bombay.	Deoláli.

COLABA.

Captain W. H. Haydon, R.E., Acting Executive, Engineer Bombay Defences, reports that the following sanitary works were undertaken at Colába during the year:—

EUROPEAN TROOPS.

Accommodation for European Artillery Barracks and their Out-buildings.

(I.) Removing the wall which separates F. and G. Wards on the west side of the Station Hospital at Colába. Estimated cost Rs. 11; actual cost not known.

Barracks and Subsidiary Buildings.

(II.) Sun shades to the school masters' quarters 6 Brigade Royal Artillery.—Teak weather boards on the south and west sides of the quarters have been provided. Estimated cost Rs. 189; actual cost Rs. 179.

Erecting a urinary for the use of the soldiers frequenting the Scripture Reading and Prayer Rooms.

A urinary 6′×6′ exactly similar to those of the Infantry Lines, has been erected, viz., frame work of round teak, walls of split bamboos, and roof double-tiled. Estimated cost Rs. 63; actual cost Rs. 63.

Putting up a board with Garrison Military School painted on it at No. 74, Upper Colaba.—A teak board, with the printing thereon "Garrison Military School" has been provided and fixed to the North side of the building. Estimated cost Rs. 14; actual cost Rs. 14.

Accommodation for British Infantry Barracks and their Out-buildings.

(III.) Removing the partitions dividing the 4 rooms at the North end of the unoccupied Patcherry No. 52. The longitudinal and cross partitions of double bamboos which divided the four rooms at the north end of the patcherry have been pulled down and removed. Estimated cost Rs. 43; actual cost Rs. 43.

Altering the Arm Racks in the European Infantry Barracks at Colaba.

All the arm racks in the Infantry Barracks have been altered so as to make them fit the Henry Martini rifles. The height from the arm-stands to the arm racks is 3′ 11″. Estimated cost Rs. 171; actual cost Rs. 170.

Quarters for Staff Serjeants of British Regiment at Colaba.

The two quarters, one for the Serjeant Major and the other for the Quarter Master Serjeant, have been improved by providing three additional windows on the west of each quarter, substituting lime floors for those of earth formerly existing, and by providing tiled roof Verandahs in place of the cudjan ones. Estimated cost Rs. 1,120; actual cost not known.

Barracks and Subsidiary Buildings.

(IV.) The front entrance door 5′×7′ with a semi-circular top and each of the two side doors, 3′×6½′, have been made of teak framing 3″×4″, filled in with teak trelliswork of 2″×⅓″ batten. Estimated cost Rs. 62; actual cost Rs. 21.

Providing light doors to the American Bowling Alley at Morley Hall.

Dungree cloth ceiling on teak framing has been provided over the billiard table to prevent dust, &c., from the roof, falling down. Estimated cost Rs. 47; actual cost Rs. 47.

Providing cloth ceiling on a wooden frame above the billiard table in the recreation room of the Wing, 66th Regiment.

All the open spaces between the stone pillars which support the roof, as also the semi-circular arched opening at the south end of the building have been enclosed with trelliswork of bamboos fixed to Ben teak framing. Estimated cost Rs. 117; actual cost Rs. 83.

Enclosing the sides of the American Bowling at Morley Hall with a light framing.

One life buoy (canvas covering) has been renewed. Estimated cost Rs. 14; actual cost Rs. 14.

Replacing and securing life buoy to the Plunge bath.

A urinary 6′×6′, exactly similar to those of the Infantry Lines, has been erected. Estimated cost Rs. 63; actual cost Rs. 61.

Erecting a urinary for the temperance room.

Iron bars have been provided to five of the store-room windows in order to make the room more secure than before. Estimated cost Rs. 35; actual cost Rs. 33.

Providing and fixing bars for the 5 windows of the back of No. 16 Store room in charge of the Infantry.

As the recreation room was too small to accommodate the members attending it, an opening 7′×8′ in the brick partition wall 10½″ thick which divides it and the unoccupied Barrack room (both being under one roof), has been made and a portion 45′ long from the barrack room has been added to the recreation room by erecting a temporary cloth partition on teak framing. Estimated cost Rs. 52; actual cost Rs. 52.

Making certain additions and alterations to the recreation room of the halfbattalion, H.M. 66th Regiment at Colaba.

Sanitarium Buildings Barracks and their Out-buildings.

(V.) New stairs at the north end have been provided from the outside of the Sanitarium in order to form a separate approach to the upper quarter without going inside the lower quarter. The old stairs from the inside have been removed and the opening in the upper floor has been closed up with teak joists and planking similar to the rest of the floor. The two bath-rooms have also been improved. Estimated cost Rs. 600; actual cost not known.

Addition and alteration to the Married Officers' Sanitarium at Colaba.

Reconstructing the Depôt Barracks and auxiliary buildings at Colaba

The old barracks patcherries, orderly room, cells, &c., have been pulled down and removed in order to construct the following new buildings:—

1. A single man's barrack for 44 men, a wash house, latrines, cart shed, sweeper's shed, and urinary for the above with covered passages.

1. A patcherry for 7 families. A cook-house and two latrines for ditto with covered passages.

1. A canteen, liquor store-room, &c., have been added to the old patcherry.

The construction is of a semi-permanent nature, viz., brick nogging walls and roofs supported on teak posts, same as in the Royal Artillery Barracks lately completed. Estimated cost Rs. 54,569; actual cost not known.

Barracks and Subsidiary Buildings.

Punkhas for the orderly room of the Depôt.

(VI.) Three punkahs are being provided for. Estimated cost Rs. 32; actual cost not known.

Miscellaneous.

Erecting *Ben teak* partition between the pans in the native latrine near the Lunatic Asylum.

(VII.) Ben teak partitions have been provided. Estimated cost Rs. 20; actual cost Rs. 20.

Partitions in the latrines used by natives at Calaba.

Ben teak partitions have been provided. Estimated cost Rs. 100; actual cost not known.

Ground at Colaba for the accommodation of infectious cases arriving by troop-ships.

A piece of ground 90′ × 26′ to the east of the Morley Hall has been levelled by filling in loose stone, sand, and earth. Estimated cost Rs. 101; actual cost not known.

Draining the ground between the Markers and Ricochet Butts of the short range.

As the stagnant water in the hollows by the Markers and Ricochet Butts of the short range at Colaba was considered prejudicial to the health of the troops, this evil has been remedied by filling in the hollows. The masonry drain 85′ long, leading from the wash-house of No. 3 Barrack, has been removed, and a masonry wall, 2′ diameter and 3′ in depth for a receptacle, has been provided. Estimated cost Rs. 269; actual cost Rs. 268.

Covering in the well situated between the new buffaloe sheds and the *Keeper's* hut.

The well has been covered with corrugated iron sheets fastened to cut teak wood work. Estimated cost Rs. 50; actual cost Rs. 48.

Cleaning and levelling the ground in front of the Lascars Lines.

The ground in front of the Lascars Lines, as also in front of the Royal Artillery Family Quarters has been much improved by blasting rocks generally. The surface has been coated with clay.—Estimated cost Rs. 200; actual cost Rs. 201.

Removing the piece of wall and gate opposite the Assistant Apothecary's Quarters (No. 65).

A compound wall, about 50 feet long and 3 feet high with gate, has been pulled down and removed. Estimated cost Rs. 3; actual cost Rs. 3.

Providing ridge ventilation to the cook house allowed to the Bungalow No. 16.

A ridge ventilator (9″ in height) has been added to the old roof. Estimated cost Rs. 30; actual cost Rs. 29.

Fitting the loft over the stable of the Officers' Quarters No. 42 for the accommodation of servants.

The gable ends of the loft 26′×6′ have been closed by constructing split bamboo walls on round rafter framing. A Ben teak door and three barred windows have also been provided. Estimated cost Rs. 29; actual cost Rs. 29.

Providing weather frames to the 8 windows on the east side of Quarters No. 76.

Weather frames of double bamboo and matting on frames of square teak work, have been provided to keep the morning sun from the rooms. Estimated cost Rs. 67; actual cost Rs. 64.

Providing 6 fixed weather frames of double bamboo matting on teak framing to the 6 windows of Bungalow No. 25.

The weather frames have been provided, as described, in order to prevent the evening sun entering the officers' Bungalow No. 25. Estimated cost Rs. 45; actual cost Rs. 43.

Allotment of Bungalow No. 72.

Partitions on the upper floor have been removed and the bungalow No. 72. has been allotted to the Army Scripture Reader. Estimated cost Rs. 20; actual cost Rs. 20.

Alterations and additions to Bungalow No. 78 at Colaba for adopting it as a Parsonage.

An upper strong 19′×12′ in clear and 8′ in height to the top of the post plates has been added to the front porch, supported on teak posts 5″×5″. The floor is of planking 1″ thick resting on joists and supported on beams, 5″×9.″ There are six windows each 3′×4′, with double shutters of glass and Venetians. The main roof is of double tiles laid on $\frac{3}{4}$″ thick planking. The whole of the wood work is of teak and painted. Three additional bath-rooms, each 10′×6$\frac{1}{2}$′ have also been constructed. Also a coach-house and stable have been added to the old range of out-buildings. Estimated cost Rs. 2,981; actual cost Rs. 2,980.

Providing and fixing 4 glazed windows to the Bungalow No. 14 occupied by the Commandant, Colaba depôt.

Four glazed windows, each 3$\frac{1}{2}$′×4$\frac{1}{2}$′ have been provided. Estimated cost Rs. 44; actual cost not known.

BOMBAY.

Mr. Muncherji Cowasjee, A.I.C.E., Acting Executive Engineer, Presidency, reports that the following sanitary works were undertaken during the year 1877:—

The surface drainage of the N.I. Regimental Lines at Boree Bunder having been found defective, the following improvements are being carried out:—

All protuberances of rocks have been removed and the unevenness of the ground between the Sepoys' Pendalls levelled to admit of the construction of drains and the free discharge of the surface waters into them.

Each Sepoy's hut has been provided with a bathing place 2′×2′, built of masonry covered over with a layer of $\frac{3}{4}$″ asphalte on a concrete bed and secured with cut stone Porebunder border on all sides.

The water from the bathing places is conducted through 3″ country made earthen-ware pipes into small open channels abutting against and parallel to the "Chabootras" or open platforms in front of the Pendalls. These small channels are connected with the central open channels, which also receive the storm water of the surrounding ground and empty their contents into a large open gutter 562′ long, running along the whole width of the lines from north to south. This large gutter discharges its contents by direct gravitation into the municipal sewer below the Esplanade Cross Road near the Carnac overbridge.

The central and side channels are of triangular section and constructed of medium dressed blue basalt cut stone laid on rubble masonry bed. The large open gutter is also of a triangular section with the bottom rounded off and constructed of rubble masonry finished with $\frac{3}{4}$″ asphalte.

The channels are all laid out in straight lines and take the direction of the natural drainage of the ground with an inclination of 1 in 240. The channels being perfectly straight and entirely open, can be well flushed with water and cleared periodically during the day.

To prevent the ingress of foul gas from the municipal sewer into the lines, a stench trap on Mansergh's principle, has been constructed of brick masonry plastered and finished with a coat of Portland cement. In the trap two water seals are formed. Should the pressure in the main sewer force the gas through the first or lower seal, it will escape into the air through the ventilating shaft, and cannot possibly enter the second seal.

A stench trap is also to be constructed to the existing covered drain at the east end of the lines.

A screen wall 170' long and 14' high has also been constructed at the north east corner of the lines to prevent the admission of noxious gases from the public night-soil depôt in the close proximity of the lines. Estimated cost Rs. 28,626; actual outlay during 1877 Rs. 9,109.

Pavements in rear of the privies at the north east corner of the Marine Battalion Lines, Bombay, constructed, and 6" earthen ware pipes laid on to drain off the foul water therefrom. Estimated cost Rs. 69; actual outlay Rs. 59.

A masonry cess-pool 2½' in inside diameter and 2' deep finished with asphalte has been constructed at the back of the servants' privy in the compound of Bungalow No. 6 in the Marine Lines. Estimated cost Rs. 24; actual outlay Rs. 24.

A cess-pool as above described 2½' in inside diameter and 2' deep with masonry plastered drain 40' long to receive water from the servants' rooms has been constructed in the compound of Bungalow No. 5 in Marine Lines. Estimated cost Rs. 72; actual outlay Rs. 56.

A cess-pool 2½' in inside diameter and 3' deep constructed at the rear of the privy attached to Pension Pay Office. Estimated cost Rs. 18; actual outlay Rs. 17.

7 Masonry cess-pools each 1' 9" in inside diameter and 2' deep constructed in rear of the servants' Quarters Nos. 1 and 2 in the compound of the Hospital of the 20th Regiment N. I., in the Marine Lines. Estimated cost Rs. 111; actual outlay Rs. 75.

The floor of the servants' latrines and the ground in rear of the same, in the compound of Bangalow No. 3 in the Marine Lines, have been asphalted. Estimated cost Rs. 47; actual outlay Rs. 43.

TANNA.

Captain Macartney, R.E., Executive Engineer, Northern Konkan, reports that the following Sanitary works were undertaken during the year 1877:—

A system of open V shaped drains has been constructed for the surface drainage of the north block of the lines, similar to those previously laid for the drainage of the south block.

DEOLA'LI.

Captain E. C. Hart, R. E., Acting Executive Engineer, Northern Division, reports, that the following sanitary works were undertaken during the year:—

Making improvements to the Commissariat Warrant Officers' Quarters at Camp Deoláli.

The quarters for the Commissariat Warrant Officer at Deoláli having been found to be very hot and unhealthy, owing to the rooms being low and the roof of corrugated iron, the latter has been removed and the main walls raised 3 feet all round, in which 6 clerestory windows have been fixed for proper ventilation and light, a double tiled roof being substituted in place of the iron one.

Specification.

The old teak plank ceiling over rooms in main building removed and replaced in corresponding positions after the alterations have been effected.

Additions to main walls, usual superstructure work, with angle, quoins, windows, &c. chunam plastered and white washed inside and pointed outside.

Addition to partition wall, burnt brick and lime masonry, and in order to afford additional support to the new roof, a gable portion is added to this wall.

Roof consists of old trusses, hips and ridge and new teak purlins, cut teak rafters, and battens, bamboo matting and double tiles.

Clerestory windows, teak framed and glazed, with fixtures and fastenings complete.

Lintels over clerestory windows of well seasoned teak wood.

Estimated cost Rs. 1,183. Actual Expenditure 1,069-2-8.

Paving two portions of the slaughter yard at Camp Deoláli.

The animals were slaughtered and partially skinned on the stands which were a paved area; the carcasses were then dragged over unpaved portions towards the gallows where they are hung up and finally prepared for issue. The consequence was the emission of an offensive smell from the unpaved grounds on account of repeated saturations with blood. To avert this, the unpaved grounds have been completed with cut stone pavement.

Specification.

The paving is of cut stone, 2nd sort, on a layer of 12″ stone and lime masonry and the surface pointed with chunam. Estimated cost Rs. 158, Actual Expenditure Rs. 157-14-4.

Paving servants' Latrine and approach thereto of the Telegraph Office at Camp Deoláli.

The floors of the latrine and approach thereto were of mud and the consequence was the emission of an offensive smell from the ground on account of repeated saturations of urine and water. To avert this, the latrine and approach thereto have been paved.

Specification.

The floors of the latrine and approach thereto have been paved with cut stone, 2nd sort, on a layer of 6″ stone and lime masonry, and the surface pointed with chunam. Estimated Cost Rs. 28. Actual Expenditure Rs. 26-14-8.

Deepening certain wells in the Deoláli Cantonment.

Owing to the scanty rain-fall of two seasons, fears were entertained that the water-supply of the camp would fail. 5 of the wells have accordingly been deepened 8′, 9′, 11′—6″, 6′ and 10′ feet respectively; the work was then stopped as it was believed a sufficient supply had been obtained. Estimated Cost Rs. 2,390. Actual Cost Rs. 1,285-10-3 to date.

SIND DISTRICT.

STATIONS.

Kurrachee. | Hyderabad.

Jacobabad.

KURRACHEE.

Captain J. D. Cruickshank, R. E., Acting Executive Engineer, Lower and Central Sind, reports that no sanitary works of any kind were undertaken at this station during the year 1877.

HYDERABAD.

Mr. Banks, Supervisor, reports that the following sanitary works were undertaken during the year 1877:—

The machinery for lifting, and pipes and Hydrants for the supply of water have this year been nearly completed by the Municipality of Hyderabad Town. The water is to be obtained from the river Indus, pumped into settling tanks near the river. From thence it will run by natural flow to the foot of the Hill on which the Cantonment is built, and is to be pumped up into a tank capable of containing 100,000 gallons from which the Cantonment will be supplied. The wash houses of the Barracks are provided with 10 cisterns capable of holding 984 gallons, and the Patcherries with 12 cisterns, holding 350 gallons, each. The above are provided with a foot ball valve so that the supply is constant. The European Hospital, the General Hospital, and the Commissariat Cattle Lines, and Private Bungalows are provided with Hydrants. The Sudder Bazár is supplied with an eight-hand service Hydrant. The Native Infantry Lines are supplied with a small trough and Hydrant. Precautions were taken this year to regulate the supply of the water into the Belooch Tank, and bunds were erected in two places to prevent the spread of the water into the low ground immediately under and to the South of the Cantonment. Expenditure, amounting to Rs. 21, has been incurred by the Staff Officer at one place in the Cantonment, where during the rains, water used to accumulate. A culvert has been made into the main drain of the camp, costing Rs. 166.

Captain Osborn, R. E., Executive Engineer, Jacobabad District, reports that the following Sanitary works were carried out during the Year 1877.:—

Names of Works.	Estimated Amount	Actual Outlay.	Date of Completion.	Remarks.
Military.				
Pulling down the roofing and arching of 7 pendalls and two-half pendalls and replacing them with new roofing, supported by beams of the 30th Regiment, Native Infantry.	12,108 0 0	6,574 0 0	April 1877.	3 whole and 2 half Pendalls are in fair repair and occupied at present; others are condemned. Plans and estimates for new Pendalls have been prepared and submitted for sanction as per Government Resolution No. 73 W / 461 of 4th April, 1877.
Description				
The Pendalls are each 451 × 17-5 having a wall 1-5 thick in the middle, running lengthwise and dividing each pendall in two sides, every one of which contains 98 arches to support the roof. The arches are 1-5 thick and outside walls are 2′ thick, all around having a parapet over them 1′ thick and 1·5′ high. There are seven whole and two half pendalls.	.....	.....	.....	
Specification.				
The old roof and the arching to be removed and substituted with new roofing of clean tatties supported by babul beams. The bottom of the walls attacked by salt to be renewed and replaced by pucka bricks and mud masonry. Walling of burnt brick and mud to be built under the roof beams which are to be set in chunam, parapet, and gutters to be provided	.....	.....	.....	
BUILDING A NEW WARD TO THE HOSPITAL OF HER MAJESTY'S 30TH REGIMENT, NATIVE INFANTRY.				
Description.				
The present main Ward is 51′ × 24′ which at the rate of 60 superficial feet per bed gives accomodation for 18 patients after deducting space occupied by pillars, stones, &c. The proposed new Ward provides for 2,090 superficial feet, and will therefore accommodate 32 men leaving space enough for two stores. The proposed building consists of a main Ward, a receiving-room and a bath-room. The main ward is 186′ long and 20″ wide; it is divided by a partition wall into two nearly equal parts. The varandahs are 8′ wide and the small corner room measuring 12′ × 10′	.....	.....	.....	
The springing of the arches is throughout at the same height, viz, 12′ from the floor. The vaulting of the main Ward is 18″ thick and semicircular. The plinth is 3′ high, the foundations are two feet deep, that usually being sufficient to reach firm ground. Doors and windows are placed alternately; there are also clerestory windows and ventilators between every two beds. Chicks are to be hung over all external arches of doors and windows.	.....	.....	.....	Revised estimate sanctioned in Government Resolution No. 800 M. W. / 1555 of 5th September, 1876.

Names of Works.	Estimated Amount.	Actual Outlay.	Date of Completion.	Remarks.
Construction.				
The foundaton, plinth and superstructure to a height of 6′ from the ground to be of burnt brick and lime masonry. The vaulting of the main Ward and foot masonry round all wood work, is also of brick and lime. The long walls of the main Ward and all arches not surrounding wood work to be of burnt brick and mud. The remainder of the superstructure being sun-dried bricks and mud, all masonry except burnt brick and lime work to be plastered with mud and bhoosa. The flooring will be of 12″ Sq. bricks set in chunam. The floors of the bath-room and dispensary will be plastered with chunam. The doors and windows to be of babul frames with stained devdar panelling both doors and windows to be $\frac{1}{3}$ panelled, $\frac{2}{3}$ glazed. Fan-lights are provided above.	.....	.....	.....	
Specification.				
Soorkhee to be made from throughly well burnt bricks and to be ground, to pass through a sieve $\frac{1}{16}$ mesh. *Excavating foundation.* The ground must be levelled before marking out the work, the sides of the excavation should be at as steep a slope as the earth will stand, and the excavation should not be longer than necessary. *Brick work* of first class bricks well burnt and pounded soorkhee and best lime should be laid in English bond. No more broken or half brick being used than are absolutely necessary. Joints are not to be more than $\frac{1}{4}$″ thick are to be finished off clean, and full so as to show the shape of the brick, and not to be plastered over. All brick work is to be kept constantly wet night and day till the mortar is well set. Mats should be hung over faces exposed to the sun.	.....	.....	.....	
Arching.				
The bricks to be laid in bond as above directed; they should be moulded or cut to proper shape, mortar to be, 1 lime and 2 of soorkee, mixed 12 hours in a mill and should be used fresh. *Brick flooring* will be 12″ square bricks laid on layer of bricks 6″ thick. *Chunam floor* to be of concrete floated with lime mortar. *Concrete* 1 part of lime, 2 soorkee and four broken bricks. *Wood work* to be well seasoned and good quality free from knots or cracks. *Frame work* not less than 4′ × 5″ and the parts fixed in masonry to be dipped in hot dammer and then fixed in lime masonry.	.....	.....	.....	
	12,317 0 0	7,405 12 8	In Progress...	

Names of Works.	Estimated Amount.	Actual Outlay	Date of Completion.	Remarks.
BUILDING A NEW WARD FOR THE HOSPITAL OF THE 1ST REGIMENT, SIND HORSE. *Description.* The present ward is 50′ long by 24′ wide, which gives ground space for 20 patients at the rate of 60 superficial feet a patient but allowing the room of two beds for a stove or fire place, the number is lessened to 18. Hence the new ward must accommodate 7 patients, or adding two for the fire, the area of the ward will be 540 square feet; the description of the building is the same as that proposed for the other regiments. Contagious ward and a dead-house are provided. The main ward is 27′ long and 20′ wide. The verandahs are 8′ wide and the small corner rooms measured 12 feet by 10 feet. The springing of the arches is throughout at the same height, viz., 12 feet from the floor. The vaulting of the main ward is 18 inches thick and semicircular. The plinth is 3″ high, the foundations are two feet deep, that usually being sufficient to reach firm ground. There are two clerestory windows and ventilators between every two beds. Chicks are to be hung over all external arches, doors and windows. *Construction.* The foundation, plinth and superstructure to a height of 8′ from the ground to be of burnt brick and lime masonry, the vaulting of the main ward and one foot of masonry round all wood work is also of brick and lime; the long walls of the main walls and all arches not surrounding wood to be of burnt brick and mud; the remainder of the superstructure being sun-dried brick and mud. All masonry except burnt brick and lime work to be plastered with mud and choona. The flooring will be of 12″ square bricks set in chunam, the floors of the dispensary and bath-rooms will be plastered with chunam, the doors and windows to be of babul frames with stained deodar panelling. The doors to be ⅓ panelled and ⅔ glazed. Fan lights are provided above both.	5,160 0 0	4,429 3 8	In Progress.	Revised estimate sanctioned in G.R. No. $\frac{300 \text{ M. W}}{1555.}$ of 5th September 1876.
Specification Same as that for 30th Regiment. ERECTING A HOSPITAL FOR THE 3RD REGIMENT, S. H. *Description.* The 2nd and 3rd Sind Horse are at present using one building calculated to hold 26 beds. It seems therefore advisable to hand this entirely over to the 2nd Regiment, and to provide fresh accommodation for the 3rd, particularly as there is no con-				

Names of Works.	Estimated Amount.	Actual Outlay.	Date of Completion.	Remarks.
venient ground for building close to the present Hospital. The plan corresponds very nearly with the standard plan (Circular No. 43 of 1871), the chief difference being in the arrangements of the small corner rooms. This alteration has been made to simplify the construction of the vaulted roof. The arches in the verandah are made smaller than those in the standard, the latter appearing unsuited to the hot dust storms glaring atmosphere of Upper Sind. The main ward is 84' 6" long and 20' wide; it is divided by a wall into two parts. The verandahs are 8' wide, and the small corner rooms measure 12 feet × 10 feet. The springing of the arches is throughout at the same height, viz., 12' from the floor. The vaulting of the main ward is 18" thick, and semi-circular. The plinth is high. The foundations are two feet deep, that usually being sufficient to reach firm ground. Doors and windows are placed alternately; there are also two clerestory windows, and ventilators between every two beds. Chicks are to be hung over all external arches, doors, and windows. Two iron stoves with boilers arrangement above are provided for heating the building. *Construction* Same as for the 1st Regiment, Sind Horse. *Specification* Same as for the 1st Regiment, Sind Horse.	14,606 0 0	12,726 2 3	In Progress.	Revised Estimate sanctioned in G.R.No. 300 M. W. 1555. of 5th September 1876.
CONSTRUCTING LATRINES FOR A BATTERY OF MOUNTAIN TRAIN AT JACOBABAD. *Description.* The latrines designed according to standard plan, are, one for men consisting of 8 seats and one for women of 4 seats. *Construction.* Foundations, plinth of burnt brick and lime—walling in rear and side of seat and pillars supporting the roof are of burnt brick and lime. The rest of the masonry is of kutcha brick and mud seat dressed brick set in lime. Pans of iron, roof of clean tatties, babul beams of kurred rafter.	888 0 0	886 8 0	March 1877.	
RE-ROOFING ONE OF THE PENDALLS OF MOUNTAIN TRAIN BATTERY AT JACOBABAD. *Description.* This pendall was put in thorough order last year, but the roof has since been destroyed by fire. The new roof is to be of the same description with the old one and consists of babul wood beams, clean and rough tatties, babul rafters, mud plastered.	1,024 0 0	956 11 0	October 1877.	

Names of Works.	Estimated Amount.	Actual Outlay.	Date of Completion	Remarks.
ESTIMATE FOR ARMOURER'S SHOP FOR 30TH REGIMENT NATIVE INFANTRY. *Description.* The work shop consists of a front room 20'×18', a shop 12'×11'-10'-5 and a drying room 12'×5'. The walls are made 2' thick and 20' high to the bottom of beams, also the roof has been changed from sloping to a flat one, more suited to Sind climate. The main chimney cupboard 4'×7'-6" a shade for bellows and masonry work only for the browning trough have been provided. *Construction.* The foundation, plinth, 5.5' walling and joists of doors and windows are of burnt brick and lime; the rest of kutcha brick and mud plastered with mud and bhoosa outside and inside. The roofing is of teak beams, teak rafters 2" × 3" and one foot apart from centre to centre covered with tiles 3" thick and plastered with mud 4" thick. The doors and windows are of pucca teak, the former battened and the latter iron-barred outside and glazed inside provided with strong bolts, hooks, hinges, locks &c. Flooring to be of pucca brick on edge, set on a concrete of brick and lime—a cupboard with 4 shelves to be provided.	2,856 0 0	2,854 2 1	March 1877.	

ADEN.

Major E. P. Gambier, R. E., Executive Engineer, Aden Division, reports that the following sanitary works were undertaken at Aden during the year :—

(1). Reconstructing the Lock Hospital, Rs. 965.

This is a building of temporary construction, wooden frame, mat and thatch. It was reconstructed as the old one was about to fall down.

(2). Constructing a Latrine for the Residency Guard Room, Rs. 259.

This has 2 seats and is built of stone and lime without a roof.

(3). Providing a Cook-room, privy and bath-room for the Assistants' quarters at the Aden Troop Hospital, Rs. 745. Cook and bath-room and Latrine, all in one building, stone and lime wall; roof of Taylor's Tiles.

(4). Laying asphalte and stone paving to certain buildings in the R. A. Lines, Camp Aden, Rs. 2,665.

The old paving of the floor of the Guard-room Sergeants Mess and School was very rough. This work has greatly improved the same.

(5). Improving the water-supply arrangements in Camp and Steamer Point, Rs. 35,011.

These works have been nearly completed; the improvements are not in the quality or quantity of water to be distributed but merely in the arrangements for distribution to effect economy in conveyance and establishment; one of the main features of the scheme is a large Iron Tank in Camp capable of holding 80,000 gallons of condensed water to be filled by iron pipes from the Seera Condenser.

SECTION IX.

SANITARY WORKS, CIVIL.

The following return shows the sanitary works performed in each collectorate of the Bombay Presidency during the year 1877 :—

KHANDESH COLLECTORATE.

1. Chopra Town Municipality—	
(*a*) Construction of a new drain	Completed.
(*b*) Repairing 4 old wells	Do.
(*c*) Lighting the town	Do.
(*d*) Closing and cleansing private cess pools	In progress.
2. Jalgaon Town Municipality—	
(*a*) Construction of a new tank at Mehrun by the Irrigation Department :—water is at present supplied to the town by means of pipes and a centrifugal pump.	In progress.
(*b*) Increasing the number of lamp-posts	Completed.
(*c*) Construction of new dust-bin	In progress.
(*d*) Four water-barrels and 2 fire-engines (always kept ready in the centre of the town)	Completed.
(*e*) Building a new dispensary	Do.
3. Amalner Town Municipality—	
(*a*) Repairs to small drains	Do.
4. Parola Town Municipality—	
(*a*) Repairs to tank	Do.
5. Erandol Town Municipality—	
(*a*) Road-watering	Do.
6. Dharangaon Town Municipality—	
(*a*) Clearing roads	Do.
7. Bhadgaon Town Municipality—	
(*a*) Repairs to drains	Do.
8. Viramgam Town Municipality—	None.
9. Sindkhera Town Municipality—	
(*a*) Repairs to roads	Completed.
(*b*) Water-supply	Do.
(*c*) Miscellaneous Improvements	Do.
10. Betáwad Town Municipality—	
(*a*) Repairs to roads	Completed.
(*b*) Water-supply	Do.
11. Sirpur Town Municipality—	
(*a*) Repairs to roads	Do.
(*b*) Water supply	Do.
(*c*) Miscellaneous Improvements	Do.
12. Dhulia Town Municipality—	
(*a*) Making new roads, as well as reparing old ones	Do.
(*b*) Erection of new dust-bins	Do.
(*c*) Repairs to wells	Do.
(*d*) Do. to gutters	Do.
13. Songir Town Municipality—	
(*a*) Construction of one new road	Do.
14. Nandurbár Town Municipality—	
(*a*) Gutters to a road in the town	Do.
15. Sháháda Town Municipality—	
(*a*) General conservancy	Do.
(*b*) Watering road-side trees	Do.
(*c*) Do. roads	Do.

16. Prakasha Town Municipality—

(*a*)	General conservancy	Completed.
(*b*)	Planting road-side trees	Do.
(*c*)	Killing rabid dogs	Do.
(*d*)	Watering roads	Do.
(*e*)	Well-repairs	Do.
(*f*)	Purchasing cholera medicines, &c.	Do.

17. Taloda Town Municipality—

... ... (None stated)

NASIK.

1. Násik Town Municipality—

(*a*)	Cleaning drains	Completed.
(*b*)	Making 2 new roads	Do.
(*c*)	Cleaning and repairing public wells	Do.

2. Igatpuri Town Municipality—

(*a*)	Construction of four new fountains	Do.

3. Sinnar Town Municipality—

(*a*)	Erection of some new dust-bins...	Do.
(*b*)	Clearing and draining 2 roads	Do.
(*c*)	Repairs to 2 wells	Do.
(*d*)	Excavating 1 new well	Do.

4. Trimbak Municipality—

(*a*)	Construction of a causeway to protect part of the town from flood-waters	Do.
(*b*)	Clearing and reparing 2 tanks	Do.

5. Yeola Municipality—

(*a*)	Construction of 2 public latrines	Do.

6. Málegaon Town Municipality—

(*a*)	Repairing roads and widening side gutters	Do.
(*b*)	Watering roads in the hot season	
(*c*)	Making kundias in the town for deposit of sweepings ...	Do.
(*d*)	Lighting the town	Do.
(*e*)	Making zirahs in beds of rivers	Do.

AHMEDNAGAR.

1. Ahmednagar City Municipality—

(*a*)	Construction of a waste-water drain	Completed.
(*b*)	Do. do. cistern	Do.
(*c*)	Do. do. do.	Do.
(*d*)	Restoring the Warulwádi aqueduct and reservoir	Do.
(*e*)	Clearing of the Anandi aqueduct	Do.
(*f*)	Erection of all water pillars for Mochees in Bagadpati ...	Do.
(*g*)	Do. in Mutton Market	Do.
(*h*)	Cutting a new reservoir and tunnel at the source of the Kaparwadi Aqueduct	Do.
(*i*)	Restoring the Warulwádi Tank	Do.
(*j*)	Restoring 5 old wells for supplying water to the existing aqueducts during scarcities	Do.
(*k*)	Construction of 2 small waste-water drains in the city ...	Do.

2. Sangamner Town Municipality—.

(*a*)	Erection of a wooden railing to market (cost Rs. 96) ...	Do.
(*b*)	Repairs to old drains (cost Rs. 12)	Do.
(*c*)	Construction of new drains and gutters (cost Rs. 300 and 46 respectively)	Do.
(*d*)	Construction of a new road to the river (cost Rs. 50) ...	Do.
(*e*)	Road repairs in the town (cost Rs. 278)	Do.

3. Bhingar Town Municipality—

(*a*)	Closing of night-soil pits situated within 100 yards of the town-walls, and choosing ground ¾ths. of a mile off for the purpose	Do.
(*b*)	Introduction of carts for carrying away filth	Do.

4. Taluka Nagar Local Funds—

(*a*)	Repairing a well at Devoolgaon side (cost Rs. 11)	Do.

5. Taluka Párner Local Funds—	
(a) Construction of a new well at Wadegawhán, Pábal, and Garkhind (cost Rs. 100 each)	Completed.
6. Taluka Shrigonda Local Funds—	
(a) Repairs to a well at Nimbri (Rs. 238)	Do.
7. Taluka Karjat Local Funds—	
(a) Repairs to a well at Takli Khandeshwari (Rs. 34)	Do.
8. Taluka Jámkhed Local Funds—	
(a) Excavating a zará on Pimpalwádi road Rs. (50)	Do.
(b) Do. at Naigaon (Rs. 11)	Do.
9. Taluka Shigaon Local Funds—	
(a) Excavating a zará at Somthan Nalwáda (Rs. 75)	Do.
(b) Do. at Najik Babhulgaon (Rs. 8)	Do.
(c) Construction of a new well at Sultánpur (Rs. 101)	Do.
(d) Do. at Manik Dawandi (Rs. 35)	Do.
(e) Repairs to a well at Tondoli (Rs. 24)	Do.
10. Taluka Newása Local Funds—	
(a) Water-trough, &c., to the well at Jalke Khurd (Rs. 415) ...	Do.
(b) Clearing a well at Watapur (Rs. 75)	Do.
(c) Building a quay to the river Ganga at Warked (Rs. 163) ...	Do.
11. Taluka Sangamner Local Funds—	
(a) Repairs to Bath to the well at Kuran (Rs. 19)	Do.
12. Taluka Akola Local Funds—	
(a) Repairing a zara at Jamgaon (Rs. 6)	Do.
13. Taluka Ráhuri Local Funds—	
(a) Sinking a new well and constructing a water- trough at Kangar Bk. (Rs. 52)	Do.
(b) Sinking a new well between Belápur and Deoláli (Rs. 20.) ...	Do.
(c) Fencing a well at Bahumi (Rs. 2)	Do.
14. Taluka Kopargaon Local Funds—	
(a) Repairs to a well and water-trough at Khairi Nimbgaon (Rs. 150)	Do.
(b) Do. at Brahmangaon Takli (Rs. 250)	Do.
(c) Repairs to a well at Talegaon Male (Rs. 220)	Do.
(d) A water-trough to the well at Nimbgaon Nighaj (Rs. 65) ...	Do.

POONA.

1. Poona City Municipality—	
(a) Extending water-supply to 2 more peths	Completed.
2. Jejuri Town Municipality—	
(a) A cistern for chammars	Do.
(b) Improvement in the aqueduct	Do.
3. Sáswad Town Municipality	Do.
(a) Construction of a temporary dam in the river	Do.
4. Bárámati Town Municipality—	
(a) Certain addition to the dharmshalas in the Peth	Do.
5. Tálegaon (Dabhade) Town Municipality—	
(a) Clearing roads	Do.
(b) Repairing latrines	Do.
(c) Construction of new roads and drains	Do.
(d) Erection of a dharmashala	Do.
(e) Planting trees	Do.
6. Tálegaon (Dhamdhere) Town Municipality—	
(a) Repairing roads	Do.
(b) General conservancy	Do.
7. A'landi Town Municipality—	
(a) Completing the bridge over the nullah running into the river .	Do.
8. Khed Town Municipality—	
(a) Repairing roads and cattle pound	Do.
9. Junnar Town Municipality—	
(a) Repairing roads and acqueducts...	Do.

9. Indapur Town Municipality—
   (*a*) Repairing roads ... ... Completed.
   (*b*) Constructing new roads and drains ... ... Do.
10. Sirur Municipality—
   (None stated)
11. Sanitary work executed by the Local Funds during the year—
   (*a*) Sinking 23 wells .. .. Do.
   (*b*) Building 11 dharmshalas ... ... Do.
   (*c*) Planting road-side trees ... ... Do.
   (*d*) Cutting prickly pear ... ... Do.
   (*e*) Repairing wells ... ... Do.
   (*f*) Miscellaneous works ... ... Do.

SATARA.

1. Satara Town Municipality—.
   (*a*) Improvement of ditches and drains ... ... Do.
   (*b*) Erection of some new latrines ... ... Do.
   (*c*) Repairing old latrines ... ... Do.
   (*d*) Surveys for bringing in drinking water ... ... Do.
2. Wai Town Municipality—
   (*a*) Keeping the river water clean ... ... Do.
   (*b*) A new cart for carrying away refuse ... ... Do.
3. Rahimatpur Town Municipality—
   (*a*) Improvement of springs in the beds of the river ... ... Do.
4. Karad Town Municipality—
   (*a*) Construction of latrines ... ... Do.
5. Vita Town Municipality—
   (*a*) Construction of latrines ... ... Do.
6. Tasgaon Town Municipality—
   (*a*) Cutting down prickly pear ... ... Do.
   (*b*) Making holes in the streams for supply of drinking water in the hot season ... ... Do.
   (*c*) Petty repairs to public wells ... ... Do.
7. Islampur Town Municipality—
   (*a*) Slight improvements to gutters and drains ... ... Do.
8. Shingnapur Municipality—
   (*a*) Partial clearance of the tank ... ... Do.
   (*b*) Building a Dharmashalá ... ... Do.
   (*c*) Clean drinking water supply ... ... Do.
9. Mhaswad Town Municipality—
   (*a*) Adoption of *temporary* measures for supplying water, owing to want of funds ... ... Do.
10. Pusesávli Municipality—
   (*a*) Cutting down prickly pear ... ... Do.
   (*b*) Removal of mud from the old "Hel" ... ... Do.
11. Maini Municipality—
   (*a*) Road—Repair ... ... Do.
12. Malcolm Peth Municipality—
   (*a*) Sinking a new well in the middle of the Bazár ... ... Do.
   (*b*) Do. to south... ... ... Do.
   (*c*) Cutting down low jungle and brush wood ... ... Do.
   (*d*) General conservancy ... ... Do.
13. Ashta Town Municipality—
   (*a*) None of importance

SHOLA'PUR.

1. Sholápur Town Municipality—
   (*a*) Construction of a slaughter-house outside the Tooljapur Vase. Completed.
2. Pandharpur Town Municipality—
   (*a*) Enlargement of the catchment basin of the present tank by turning the Kasegaon Nullah ... ... Do.

3. Other Municipalities—
(None stated.)

BELGAUM.

1.	Belgaum Town Municipality:—About 25 pit privies have been closed and one extra cart has been employed with three extra Bhungis for cleaning out 184 seat privies, 11 dust bins have been newly constructed in various parts of the town. Several cowdung pits have been closed. The Kapaleshwar Tank and 11 public wells were cleaned and deepened to provide water for the people during the late scarcity ...	Completed.
2.	Saundatti Town Municipality—	
(*a*)	Repairs to gutters and removal of dirt from the same ...	Do.
(*b*)	Selection of places to which the population may resort for natural purposes	Do.
3.	Athni Town Municipality—	
(*a*)	Clearing out wells	Do.
(*b*)	Digging trenches	Do.
4.	Nipani Town Municipality—	
(*a*)	Steps built to a tank	Do.
(*b*)	Cutting off prickly pear	Do.
(*c*)	Construction of new roads and repairing old ones	Do.
5.	Yenkannardee Town Municipality—	
(*a*)	Removal of prickly pear	Do.
(*b*)	Cleaning out a tank	Do.
(*c*)	Construction of new roads	Do.
6.	Gokák Town Municipality—	
(*a*)	Construction of a cattlepound	Do.
(*b*)	Breaking down the Fort walls	Do.
(*c*)	Stone pavement on the river Ghat	Do.
(*d*)	Cleaning out wells, and clearing the river	Do.
(*e*)	Repairing roads and Dharmashalas	Do.
(*f*)	Construction of new roads	Do.
(*g*)	Lighting, &c.	Do.
7.	Parasgad Local Funds—	
(*a*)	Construction of a tank at each of the following places:— Benkatti, Sopavla, Saltigeri, Rudrapur, and Halkatti ...	Do.
(*b*)	Cutting off prickly pear	Do.
(*c*)	Repairing wells at Katmeli and Sogal	Do.
(*d*)	Do. a tank at Magingeri...	Do.
8.	Gokák Local Funds:—	
(*a*)	Construction of 1 tank at each of the following places:— Gokák, Hundigoond, Yadwad, Guttigoli, Dummerbinhalti, Venktapur, Kanasgeri, Kulgad and Shinapur	Do.
(*b*)	Repairs to the following 7 wells in the Town of Gokák:— Haltal, Dhor, Chambhar, Guruwa Peth, Gangalwillab, Koli Vess, and Otar	Do.
(*c*)	Repairs to 3 wells in Khangaon (Gunanhalti, Yalpatti and Ramkrishna)	Do.
(*d*)	Repairs to 1 well at each of the following places:—Shimapur, Kaloli, *Kamanak alti*, Shingnapur, Tasnimpur, Kulgod, Mugalkhode, Konur and Mukhalgeri, and to 1 well between Yadwad and Walkatti	Do.
9.	Athni Local Funds—	
(*a*)	Construction of tanks at Shankarhalli, Ainapur, Kamadiadi, Kolegood, Telsang, Harugeri and Kakmari	Do.
(*b*)	Repairs to 3 wells at Rámtirth, and 4 wells at Athni ...	Do.
(*c*)	Repairs to a well between Athni and Shinol	Do.
(*d*)	Do. do. do. and Ainapur	Do.
(*e*)	Do. do. do. and Hullial	Do.
(*f*)	Repairs to 1 well at each of the following:—Ratherhatti, Kakmari, Koligus, Bannur, Kamnadi	Do.

DHARWAR.

1. Dharwar Town Municipality—
   - (*a*) Construction of the large tank commenced in 1876. The embankment has been raised to a height of 9 feet at the highest part, and about one-fourth of the cubic contents of the whole work has been constructed ... ... Completed.
   - (*b*) Construction of masonry receptacles for the town sweepings in various parts of the town ... ... Do.
   - (*c*) Adoption of more stringent measures for keeping the streets clean, and removing refuse, also appointment of a new Inspector for the purpose ... ... Do.
2. Other Municipalities—Information not received.

KALADGI.

1. Indi Town Municipality—
   - (*a*) Lighting the Town ... ... Completed.
   - (*b*) Cleaning roads ... ... Do.
2. Sindgi Town Municipality—
   - (*a*) Cleaning roads ... ... Do.
   - (*b*) Clearing out wells ... ... Do.
3. Bijápur Town Municipality—
   - (*a*) Cleaning roads ... ... Completed.
   - (*b*) Lighting the town ... ... Do.
4. Bagálkot Town Municipality—
   - (*a*) Clearing out drains ... ... Do.
   - (*b*) Conveying rubbish out of the town ... ... Do.
   - (*c*) Cleaning roads ... ... Do.
5. Kaládgi Town Municipality—
   - (*a*) Employment of carts for conveying street refuse ... ... Do.
   - (*b*) Cleaning roads ... ... Do.
   - (*c*) Repairs to latrines ... ... Do.
   - (*d*) Lighting the town ... ... Do.
   - (*e*) Construction of a well... ... ... Do.
   - (*f*) Repairs to a tank ... ... Do.
   - (*g*) Watering roads ... ... Do.
   - (*h*) Erection of lamp posts... ... ... Do.
   - (*i*) Repairs to Civil Hospital ... ... Do.
   - (*j*) Repairs to wells ... ... Do.
   - (*k*) Do. to dharamshalla ... ... Do.
6. Kerur Town Municipality—
   - (*a*) Cleaning roads ... ... Do.
   - (*b*) Conveying street refuse ... ... Do.
7. Guledgudd Town Municipality—
   - (*a*) Road cleaning ... ... Do.
8. Ilkal Town Municipality—
   - (*a*) Construction of drains ... ... Do.
   - (*b*) Do. of bins for street refuse ... ... Do.
   - (*c*) Conveying street refuse out of town ... ... Do.
   - (*d*) Cleaning roads ... ... Do.
9. Nalatwar Town Municipality—
   - (*a*) Cleaning roads ... ... Do.
   - (*b*) Do. a Dharamshala ... ... Do.
10. Muddibihál Town—
   - (*a*) Cleaning roads ... ... Do.
   - (*b*) Miscellaneous works ... ... Do.
11. Indi Local Funds—
   - (*a*) Repairing wells at Anjotri, Manankalgi, Halsangi and Sawalsung ... ... Do.
   - (*b*) Clearing wells at Halhalli, Nimbal, Kolargi, Bahirangi and Pirapur, and tanks at Ingalgiri, and Hadalgiri ... ... Do.
12. Sindgi Local Funds—
   - (*a*) Clearing tanks at Almel and Deur ... ... Do.
   - (*b*) Repairing tanks at Gundgi and Rámpur... ... ... Do.
   - (*c*) Do. wells at Bekinal Bhinjabhani, Alhalli ... ... Do.

(*d*) Repairs to a goond at Hippargi	Completed.
(*e*) Clearing wells at Hippargi, Niralgi, Ganohar, Kanehinal, and Rámpur	Do.
13. Bagewadi Local Funds—	
(*a*) Tanks at Bagewari, Mutgi Yernal, Havinhippargi, Mattihal, Mulwar, Markabinhalli, Donur, and Satihal	Do.
(*b*) Sinking wells at Talewad, Mulbal and Yembhatnal ...	Do.
(*c*) Clearing wells at Bagewari, Takalki, Sasnur and Deginal ...	Do.
14. Bijápur Local Funds—	
(*a*) Repairing the Vakarbavdi well at Bijápur, and another well at Nagarhal	Do.
(*b*) Repairing tanks at Tonsihal, Sarwad, Bobleshwar, Sangapur, Taroo, Hittanhatti, Nidoni, Sirur, Simikeri, and Achanur ...	Do.
15. Bagalkot Local Funds—	
(*a*) Repairing tanks at Halur, Beur and Khajidoni	Do.
(*b*) Repairing a well at Bodgundi	Do.
16. Hungund Local Funds—	
(*a*) Sinking a well at Kelur	Do.
(*b*) Tanks at Yerukeri, Hungund, Bevinmatti, Sulebhavi, Guddur, and Mandvadgi	Do.
(*c*) Clearing a well on the Hungund and Ilkal road	Do.
(*d*) Clearing a well at Hungund	Do.
17. Bádámi Local Funds—	
(*a*) Tanks at Bádámi, Katgeri, Anval, Mudkavi and Kerur ...	Do.
(*b*) Wells at Kerur and Guledgudd	Do.

KANARA.

1. Karwar Town Municipality—	
(*a*) Improving the sanitary condition of the town by increased attention to cleanliness	In progress.
2. Sirsi Town Municipality—	
(*a*) Construction of new latrines	Completed.
(*b*) Cleansing of wells	Do.
(*c*) Constructing steps and a sluice to Davikari Tank.... ...	Do.
3. Coompta Town Municipality—	
(*a*) Repairs to tanks	Do.
(*b*) Sinking new wells	Do.
(*c*) Construction of new bridges...	Do.
(*d*) Do. do. drains	Do.
4. Gokarn Town Municipality—	
(*a*) Repairs to tank	Do.
(*b*) General conservancy	Do.
5. Halial Town Municipality—	
(*a*) Improvement of water-supply	In progress.
(*b*) Cleaning of roads	Do.
6. Karwar Taluka Local Funds—	
(*a*) Excavating a tank in Kuinar	Completed.
(*b*) Clearing tank at Chetakuti	Do.
7. Coompta Taluka Local Funds—	
(*a*) Construction of a channel for trough at Walgulli	Do.
(*b*) A trough and a well at Ankola	Do.
(*c*) Sinking a new well at Irrunkutta	Do.
(*d*) Repairing a well near dharamshala at Agsoor	Do.
(*e*) Repairing town roads at Ankola	Do.
(*f*) Do. Benki Koole	Do.
8. Honáwar Taluka Local Funds—	
(*a*) Mattinkeri tank at Upponi	Do.
(*b*) Repairing Gurugal keri tank at Girsappa...	Do.
(*c*) Do. town roads at Honáwar	Do.
(*d*) Do. do. at Bhutkal	Do.
9. Siddápur Taluka Local Funds—	
(*a*) Sinking a well near the dispensary at Siddápur	Do.
(*b*) Improvement to Gaori tank at Gaori	Do.

(*c*)	Excavating a tank at Hongundi	Completed.
(*d*)	Repairs to Siddápur town roads	Do.
10.	Sirsi Taluka Local Funds—	
(*a*)	Sinking a well at Banwasi	Do.
(*b*)	Repairs to village roads	In progress.
11.	Yellápur Taluka Local Funds—	
(*a*)	Sinking a well at Jangeri	Completed.
(*b*)	Improvement to the well at Nyasurgi	Do.
(*c*)	Do. do. at Gunjawati	Do.
(*d*)	Sinking a well at each of the following villages :—Amdebyle Hanmapur, Sanganhalli, Kolikery, Honshettikop and Oodaranki...	Do.
(*e*)	Repairing a well near the dharamshala at Yellápur as well as the wells at Tattihalla, Idogunji, Gunjawati, Chandalli and Sálgaon	Do.
(*f*)	Repairing tanks at Channapur, Belgeri and Agdi	Do.
(*g*)	Repairing the Jainkeri tank at Yellápur...	Do.
(*h*)	Clearing camping ground at Yellapur	Do.
(*i*)	Buswanhonda or the small tank at Mundgod repaired ...	Do.
(*j*)	The Mallikarjuna Howda at Kysemkeri repaired	Do.
(*k*)	General conservancy at Yellápur	Do.
(*g*)	Repairing roads at Yellápur	Do.
(*h*)	Do. town roads at Mundgod	Do.
(*i*)	Do. village roads at Mundgod	Do.
12.	Supa Taluka Local Funds—	
(*a*)	Sinking one new well at each of the following places :— Rayapattan, Kawalwad, Nagshettikop, and Palla ...	Do.
(*b*)	Do. 2 wells (temporary) at Sámbráni	Do.
(*c*)	Do. do. Supa	Do.
(*d*)	Clearing Jungle at Sámbráni	Do.
(*e*)	Pavement round the well at Tainac	Do.
(*f*)	Excavating a new Howda at Mangalwad...	Do.
(*g*)	Do. at Kumbarwada	Do.
(*h*)	Do. at Khurd Kanchinhalli	Do.
(*i*)	Repairing the well at Sámbráni	Do.
(*j*)	Do. the water channel at Unshi	Do.
(*k*)	Clearing the Supa Jungle	Do.
(*l*)	Do. do. town roads	Do.

RATNA'GIRI.

No sanitary works undertaken during the year.

COLABA.

1.	Alibág Municipality—	None stated.
2.	Pen Town Municipality—	
(*a*)	Construction of 72 public wells...	Completed.
3.	Rohe Ashtami Municipality—	
(*a*)	Construction of gutters and drains for the removal of dirt , ...	Do.
4.	Mahád Town Municipality—	
(*a*)	Lighting the streets	Do.
(*b*)	Construction of new roads, and repairs to new ones ...	Do.

TANNA.

1.	Tanna Town Municipality—	
(*a*)	Construction of new drains	Completed.
(*b*)	Do. do. Latrines	Do.
2.	Mahim Town Municipality—	
(*a*)	Construction of embankment to a tank	Do.
3.	Other Municipalities—	
4.	Salsette Local Funds—	None stated.
(*a*)	Sinking one well at each of the following places :—Poiser, Kukshet, Saoli, Kanjur, Trombay, Keoni and Khairni ...	Completed.
(*b*)	Railing to the tank at Kye Murda	Do.

5. Panwel Local Funds—	
(a) One well at each of the following villages:—Purga, Bhingar, Gowaten and Mahape	Do.
6. Karjat Local Funds—	
(a) One well at Koonduw and one at Wangaum	Do.
7. Murbád Local Funds:—Wells at Tulai, Bhamangaum and Mandus	Do.
8. Kalyán Local Funds:—Wells at Sonale, Bhunderli, Pulsoli, Wadowhi	Do.
9. Bhiwandi Local Funds:—Wells at Nandher and Bhokri ...	Do.
10. Bassein Local Funds—	
(a) Wells at Burhanpur, Paigam, and Kharbas	Do.
(b) Bund across the river at Pelar	Do.
11. Máhim Local Funds—	
(a) One cistern for holding water	Do.
12. Dáhánu Local Funds—	
(a) Wells at Ambesari, Lonar, Wana, and Gholwud	Do.
13. Wára Local Funds—	
(a) Wells at Chendowli, Dohe, Kharioki and Deoli	Do.
14. Sháhápur Local Funds—	
(a) Wells at Borale, Pali, Kinite and Nandgaum	Do.

SURAT.

1. Surat City Municipality—	
(a) Repairs to markets and slaughter-houses	Completed.
(b) Do. do. Civil Hospital	Do.
(c) Do. do. Dispensary	Do.
(d) Do. do. Davie's Dharmashala	Do.
(e) Construction of 50 new dust-bins, and repairing old latrines and urinals	Do.
(f) Repairs to night-soil Depôt roads and carts	Completed.
(g) Do. to Public Latrines, &c.	Do.
(h) Do. to Public Parks, &c.	Do.
(i) Do. to roads, &c.	Do.
(j) Construction of bathing steps in river-bank	Do.
(k) Introduction of new cylindrical barrels for watering roads ...	Do.
2. Ránder Town Municipality—	None stated.
3. Bulsar Town Municipality—	
(a) Construction of 18 public latrines in one line	Completed.
(b) Purchasing 2 carts for carrying away night-soil	Do.
(c) Cleaning and repairing public wells	Do.
(d) Repairs to roads	Do.
(e) Excavation of the Malad Tank	Do.
(f) Construction of a bund in the Lal Tank	Do.
4. Mándwi Town Municipality—	None stated.
5. Surat Local Funds—	
(a) Sinking 32 new wells...	Completed.
(b) Repairs to 29 wells	Do.
(c) Do. to 79 tanks	Do.

BROACH.

1. Ankleswar Town Municipality—	
(a) Cutting down prickly-pear	Do.
(b) Miscellaneous	Do.
2. Jambusar Town Municipality—	
(a) Lighting and watering the town	Do.
(b) Repairing and cleaning roads	Do.
3. Other Municipalities—	None stated.

KAIRA.

1. Kaira Town Municipality—	
(a) Repairs to gutters	Completed.
(b) Do. to town roads	Do.
(c) Do. to urinaries and 2 privies	Do.
(d) Do. to steps of the "Boorooj"	Do.
(e) Clearing 3 wells	Do.

2.	Dákor Town Municipality—	
(*a*)	Erection of an enclosure round male and female privies ...	Completed.
(*b*)	Repairing enclosures round certain female privies	Do.
(*c*)	Construction of 7 new urinaries...	Do.
(*d*)	Purchasing chunam and disinfecting powder	Do.
(*e*)	6 boxes for the reception of dirt. &c.	Do.
(*f*)	Repairing old boxes used for manure	Do.
(*g*)	Digging "kutcha" gutter on the occasion of the late Poonam festival	Do.
(*h*)	Repairing old urinaries	Do.
(*i*)	White-washing, &c., the houses of cholera patients... ...	Do.
(*j*)	Constructing temporary urinaries of bamboos on the Ashwin festival	Do.
3.	Náriad Town Municipality—	
(*a*)	Construction of minor roads and culverts	Completed.
(*b*)	Erection of enclosures round privies	Do.
(*c*)	Construction of metalled roads	In progress.
4.	Mehmudabad Town Municipality—	
(*a*)	Watering streets in hot weather	Completed.
(*b*)	Repairs to bazar roads	Do.
(*c*)	Excavating the existing tank	Do.
(*d*)	Constructing road at the entrance to the town	Do.
5.	Kapadwanj Municipality—	
(*a*)	Watering streets in the town	Completed.
(*b*)	Enclosures round privies	Do.
(*c*)	Construction of masonry slopes...	Do.
(*d*)	Repairing streets in the town	Do.
(*e*)	Filling in pits	Do.

PANCH MAHA'LS.

1.	All Local Funds—	
(*a*)	Sinking 2 new wells	Do.
(*b*)	Improvement and repairs to 29 tanks and wells	Do.

AHMEDABAD.

1.	Ahmedabad Town Municipality—	
(*a*)	Small tanks or kundis for storing water for watering roads at (i) Police station, Mocheeali, (ii) Junction of Mocheeali, and (iii) Junction of Danapeth	Completed.
(*b*)	Addition to conservancy office.	
(*c*)	Restoration of Teen Durwaja	Do.
(*d*)	Construction of side-gutters on Mahajan Gopal Haveli road...	Do.
(*e*)	Removal of Airshafts, Mocheeali	Do.
(*f*)	Pavement at Panchbhaya's Pole, 754 superficial feet ...	Do.
(*g*)	A drain near Sarangpur Gate	Do.
(*h*)	Do. at Ráipur Gate	Do.
(*i*)	Construction of a new road from Sarangpur to Kalapur across Panch Kuwa road	Do.
(*j*)	Putting over stones on side-gutters	In progress.
(*k*)	Pillasters and arch for supporting the side-walls of the step-well in the railway suburb	Completed.
(*l*)	Erection of new dust-bins	Do.
(*m*)	Construction of urinaries	Do.
(*n*)	Drains and gutters about certain municipal buildings ...	Do.
(*o*)	Dispensaries opened	Do.
(*p*)	Construction of water works, buildings and reservoirs in the city	Do.
(*q*)	Construction of cutcha gutters and roads, public privies ...	Do.
2.	Dholka Town Municipality—	
(*a*)	Repairing Malao Tank	Do.
(*b*)	Do. Jandia Kuwo and Mithee kuee...	Do.
(*c*)	Do. roads	Do.
(*d*)	Construction of new privy	Do.
3.	Viramgáám Town Municipality—	
(*a*)	Watering roads	Do.
(*b*)	Providing drinking water for poor in hot weather	Do.
(*c*)	Construction of new roads	Do.
(*d*)	Building a dharamshala	Do.

4.	Mandal Town Municipality—	
	(a) Sinking new wells	Completed.
	(b) Excavating tanks	Do.
	(c) Planting trees	Do.
5.	Prantej Municipality—	
	None except watering and cleaning the streets.	
6.	Morassa Municipality—	
	(a) Repairs to certain wells	Do.
	(b) Cleaning streets and privies	Do.
	(c) Watering streets	Do.
7.	Gogo Municipality—	
	(a) Scavenging and lighting streets	Do.
	(b) Road repairs	Do.
	(c) Cleaning tanks and wells	Do.
	(d) Fitting up of pipes to the water works	Do.
	(e) Contribution to dispensary	Do.
	(f) Planting trees	Do.
	(g) Purchasing a fire engine.	
	(h) Repairs to fortification...	Do.
	(i) Construction of public privies	Do.
8.	Dhanduka Town Municipality—	
	(a) Lighting the streets	Do.
	(b) Scavenging roads	Do.
	(c) Watering roads	Do.
	(d) Excavating tanks and wells	Do.
	(e) Contribution to dispensary	Do.
	(f) Repairing 4 gates	Completed.
	(g) Purchasing a fire-engine	Do.
	(h) Filling water troughs for cattle	Do.
9.	Duskrohi Taluka Local Funds—	
	(a) Construction of a dam at Wálad, and one to the tank at Narora	Do.
	(b) Sinking a new well at each of the following places. Waraj, Devri, Wáráde, Lambha, Bhat, Achar and Kali (for Dhers)...	Do.
	(c) Sinking 2 wells, one for Dhers, and the other for higher castes at Motera, and Pátri-ko-chrab	Do.
	(d) A well and a trough at Gaspur	Do.
	(e) A well between Barejia and Wassai...	Do.
10.	Dhanduka Taluka Local Funds—	
	(a) A well at Noli	Do.
	(b) Excavation in and a masonry wall around the tank at Phedra	Do.
11.	Dholka Taluka Local Funds—	
	(a) Sinking a well at Baóla for Dhers	Do.
	(b) Do. do. at Ambethi	Do.
	(c) Do. do. at Trasad for Dhers	Do.
	(d) Do. do. at Adasar	Do.
	(e) A well and a trough at Gundanupura	Do.
12.	Viramgam Taluka Local Funds—	
	(a) A well and a trough at Hazipur	Do.
	(b) Sinking a well at each of the following places :—Kalianpur, Bhojapura, Rám-pura, Geloa, Edarpura, Ukardi, Withalpur, and one at Godu in Nawapura	Do.
13.	Prantej Taluka Local Funds—	
	(a) Sinking a well at Dariapur	Do.
14.	Sánand Taluka Local Funds—	
	(a) Sinking a well at Bhát	Do.
	(b) A well and a trough at Bakrána	Do.
15.	Gogo Taluka Local Funds—	
		None stated.

KURRACHEE.

1.	Kurrachee Town Municipality—	
	(a) Paving roads in the native town	Completed.
	(b) Trapping cess-pools	Do.
	(c) Do. surface drains	Do.

2. Dadu Town Municipality—
   (*a*) Entertainment of a Muccadum of sweepers ... ... Completed.
3. Kotri Town Municipality—
   (*a*) Constructing a new vegetable market ... ... In progress.
   (*b*) Improvement in the fish market .. .. Do.

HYDERABAD.

1. Hyderabad Town Municipality—
   (*a*) Pattern swing Filth cart ... ... Do.
2. Tanda Mahamadkhan Municipality—
   (*b*) Construction of 2 latrines ... ... Do.

3-7. Khandiaro, Tharushah, Bhiria, Naushahro, and Moro Municipalities—
   (*a*) Filling in hollows ... ... Do.
   (*b*) Improving wells ... ... Do.

8-11. Hala, Khokar, Sháhádpur and Mirpurkhas Municipalities—
   (*a*) Repairing streets ... ... Do.

12. Matari Municipality—
   (*a*) Repairs to wells and streets—

13. Ghotana, Tando Alahyar, Tando Adam and Násrapur Municipalities—
   (*a*) Repairs to wells ... ... Do.

Other Municipalities— None stated.

Local Funds—
   (*a*) One well at each of the following places :—Karamkhan Halla, Chambur Alahyar, Kandiar, Abad, Daryakhan, Nawabshad, Ding Manik, Sháhadadpur, Zaur Shekh... ... ... Completed.

THAR AND PARKAR.

1. Godra Municipality—
(*a*) Enlarging and clearing tank ... ... Completed.
2. Mitti Municipality—
   (*a*) Reconstruction of a ward for sick patients in the dispensary... Do.
3. Nagar Municipality—
   (*a*) Construction of 2 latrines ... ... Do.
4. Umerkote Municipality—
5. Nabisar do.
6. Juda do.
7. Kharoro do.
8. Chachra do.
9. Dipla do.
10. Islamkot do.
11. Virawali do.
12. Sanghar do.
13. Khipra do.

None stated.

SHIKA'RPUR.

1. Shikárpur Town Municipality—
   (*a*) Clearing 162 wells, and excavating the Fulton tank ... Completed.
   (*b*) Filling in hollows at Daman Karm and Magard gates near Musafirkhana near Taj Mudhanimad khans house ... Do.
2. Sakkar Town Municipality—
   (*a*) Clearing and repairing side surface drains and culverts ... Do.
   (*b*) Repairing, cleaning and improving wells... ... ... Do.
   (*c*) New masonry drains and culverts ... ... Do.
   (*d*) Construction of new charitable dispensary ... ... Do.
   (*e*) Purchase of force pump for filling up water carts ... ... Do.
   (*f*) Raising the river bund and quay wells ... ... Do.
   (*g*) Improving the out fall reservoir ... ... Do.
3. Mehar Town Municipality—
   (*a*) Cleaning and repairing public wells ... ... Do.
   (*b*) Improvement to tank feeder ... ... Do.

(c) Repairing steps to canal	Do.
4. Khairpur Nathi Shap Municipality—	
(a) Repairing one well	Do.
(b) Cleaning and repairing steps to canal	Do.
5. Kambar Municipality—	
(a) Filling in hollows	Do.
(b) Construction of steps to tanks	Do.
6. Ratodero Municipality—	
(a) Repairing roads and wells	Do.
(b) Construction of steps to tanks	Do.
(c) Filling in hollows	Do.

UPPER SIND FRONTIER.

1. Jacobabad Town Municipality—	
(a) Sinking 2 new wells	Completed.

SECTION X.

GENERAL REMARKS.

Under this heading the Government of India order a short sketch of the Personal Proceedings of the Sanitary Commissioner to be given.

Famine relief operations began in November 1876, and from that time until nearly the close of the year 1877, the Sanitary Commissioner and the Deputy Sanitary Commissioners in the Northern and Southern Deccan were almost exclusively employed, to use the words of His Excellency Sir Richard Temple, "in visiting in all parts of the distressed districts, the relief camps and centres and the relief working gangs, in observing the physical condition of the rural population wherever to be met with, in gauging the symptoms of distress, in testing the returns of mortality, and in advising the authorities as to the sufficiency of the wages and rations."

I do not propose, to give more than a summary of each month's work, for the reports, which were submitted from time to time to Government, give full details of the experiences met with in each tour.

In November 1876, I inspected the relief works in the Poona and Satara Collectorates.

In December I again passed through the Poona districts, and in the commencement of January had reached Ahmednagar, when I was ordered by telegram to meet Sir Richard Temple at Sholápur and had the honour of accompanying him to Sháhábad. From thence I returned to Poona and again visited the camps at Nerh, Pingli and Rajehwádi, in the Satara Collectorate, and passing on by Pandharpur, visited the camp at Yewti on my way to Sholápur, whence, after advising the authorities as to the condition of the people, I had intended going into the Kaládgi districts and to the south, but having been attacked with sudden and severe illness, was compelled to return to Bombay. In February I proceeded to Poona, thence to Satara, inspecting new works, and thence to Belgaum. From Belgaum I went to Dharwar, where the relief question was much complicated by numerous bands of indigent immigrants, who were passing through the collectorate down to the Kanarese Jungles in search of fodder for their cattle. After making a pretty complete tour of the Dharwar talukas, I proceeded in March to Kaládgi, where I found things in a very unsatisfactory state, the rural population being generally much reduced, the organization for relief incomplete and the orders of Government as to the payment of young children not acted up to, whilst the price of grain was extremely high and fodder almost unprocurable. Government, in passing orders on my report, directed the following measures to be taken as regards persons who, from any cause, had become much weakened or exhausted and required special treatment.

1st.—To form them into separate gangs or parties.

2nd.—To put them to light work on Public Works Department rates of wages for a week or so.

3rd.—When they get into better condition to draft them back to Civil Agency works and rates or if able-bodied and strong enough to send them for employment on the regular Public Works Department works.

4th.—Very exceptional cases to be met exceptionally as ordered in Government Resolution, dated 5th January 1877, and care be taken that relief is afforded to the young children, as well as to the older children capable of work, and adults.

On leaving the Kaládgi District in the commencement of April, I revisited Sholápur, and was much struck with the improved condition of the people since my visit in the latter end of January. I also inspected labourers on Civil Agency works and found a strong confirmation of the theory which Government had enter-

tained, viz., that the large majority of labourers seeking State aid had private stores of their own which supplemented the wages they obtained from Government. From Sholápur I visited the Nira Canal works in the Poona Collectorate, thence retraced my steps to Yewti, and after visiting the labourers on the Dhond and Manmár Railway, passed through the worst districts of the Poona Collectorate. I thence returned to Poona, and came back to Bombay, whence I paid a hasty visit to Mhow on urgent business connected with the transfer of land to the railway; but at the close of the month went to Satara and visited the 3 large tanks in the Satara District where large numbers of children, some in the last stage of inanition, were found. Relief-kitchens were established and Government permitted all weakly persons to be divided into two classes: one to be fed daily at the kitchen, the other being composed of all those who required to be admitted into hospital where orders were given to feed them with *any description of suitable food*. During May, I was engaged with Dr. Carter, by order of Government in making a sanitary inspection of the foreshore in Bombay, and of the habitations of the labouring classes. Our joint report shewed that the sanitary condition of the town, was not in as good a state, as we considered it ought to have been.

In June I visited Sholápur for the third time, and after inspecting the relief operations in the city proceeded to Pángaon, a large tank in course of construction near Bársi town. I thence returned to Bombay, but in July proceeded to Belgaum and made a tour through every taluka of the Kaládgi District. I was employed in this inspection during the remainder of the month and in August, on leaving Bijápur, I crossed into the Athni Taluka of Belgaum, and thence by way of Tásgaon and Karád to Satara and Poona.

In September I again went to Sholápur, where from various causes the people had drifted into a bad state and after advising with the authorities as to the measures that should be taken, returned to Bombay, but in the following month returned to Sholápur and began a tour in the talukas of that collectorate, but having been seized with a severe remittent fever, was obliged in the middle of October to return to Bombay, which I was not able from illness to leave again.

Such is a brief summary of the work performed by me during the year. Dr. Nolan, Deputy Sanitary Commissioner, Northern Deccan, Registration District, was engaged from the date of his appointment in March 1877 until the close of the year, in repeatedly visiting all the worst districts in the extensive area under his charge, in performing which duty he displayed great devotion and rendered much valuable aid in carefully testing the condition of the people, and in advising the authorities on all matters connected with their well being. Dr. Wall, Deputy Sanitary Commissioner of the Southern Deccan District, also performed excellent service in visiting every part of the worst districts in his charge and in giving sound and practical advice to the District Officers and in reporting on the type of fever which was prevalent after the heavy rains in September and October. I am sorry to have to remark, that the health of this energetic and valuable officer broke down under the strain, and that he has at length, but not until the beginning of the current year, been obliged to go Home on medical certificate.

Surgeon Keith, was placed under my orders in May, and visited the works in the Poona, Satara, and Ahmednagar Collectorates, and did much hard work.

During the course of the tours, enumerated above, I inspected nearly 350,000 persons, so that, I had ample opportunities of comparing their condition in different districts.

Regarding the labourers on the Public Works Department rate of wages, there never was the slightest cause for anxiety. At first the rate of daily wages was fixed at 2 annas for a man, 1½ annas for a woman, 1 anna for a boy or girl old enough to be able to work, but subsequently a sliding scale was introduced by which the rate of wages increased when the staple food grain became dearer than 16 lbs. for a rupee.

A man was paid at the rate of 1 anna + the value of 1 lb. of grain.

Woman	...	...	½	1	,, ,,
Boy or girl	...	...	½	½	,, ,,

In addition to the above an allowance of 3 pies per head, for children under 7 years of age was given. These wages were paid for 6 days, during the week. No work was demanded and no payment was made for the 7th day; but when the price of grain rose so high that only 9 lbs. and under could be purchased for a rupee, the 7th day wage was permitted without work.

For labourers on the Civil Agency works there was a reduced scale of wages which came into operation in the middle of January. It was as follows:—

A man was paid ½ anna + the value of 1 lb. of grain—

Woman	... ¼	1 „	„
Boy or girl	... ¼	½ „	„

In addition an allowance was made of 3 pies per head, for children under 7 years of age. These wages were only paid for 6 days. There was no work and no pay for the 7th day. The Sunday wage without work was also allowed to the civil agency labourers, when the price of grain rose to 9 lbs. a rupee.

Before this scale of wages had been fixed by Government, power had been given to district officers to use their discretion in treating exceptional cases in an exceptional and special manner.

The general run of people on the Public Works rates, were healthy labourers mostly in the prime of life with their families; but on Civil Agency works the old, infirm, and less physically capable, were employed; but with them there were always many young adult men and women and children, who would not forsake their aged relatives.

In judging of the sufficiency of the rates, I always took the condition of the young adult men and women and the children, as my standard. In India the labouring classes shew symptoms of age comparatively speaking very early in life, and the normal condition of old men and old women in this country is to be lank, thin, and withered; but their condition would have been no true guide in estimating the general physical condition of the labourers. If I saw that the young men and young women and children were well nourished and without any symptoms of wasting, I felt convinced that they obtained sufficient food somewhere or other to maintain health.

The question which has so often been discussed as to whether a pound of grain for six days in the week, is sufficient for a subsistence allowance for a native of India never really arose, because each man received ½ an anna besides the value of a lb. of grain, with which he could purchase dhall, and a little curry-stuff, vegetables, and salt.

When first established, I had very grave doubts as to the sufficiency of the civil agency rates and shortly after they came into force, I travelled through the Dharwár and Kaládgi Districts and as before stated from what I saw in the latter, where, however, I subsequently learnt that the instructions of Government regarding expenditure in charitable relief and for the relief of young children, had not been carried out as strictly as they should have been, I reported most strongly against the continuance of the rates and urged that at all events a seventh day wage should be given, but on visiting civil agency works in other collectorates, where the orders of Government had been fully carried out, I was constrained to report that the people on civil agency rates obtained sufficient food to prevent wasting. Subsequent and anxious enquiries into the matter confirmed me in the conviction of the sufficiency of the civil agency rates for the class of people who came on to these works and for the amount of labour demanded from them. It became clear that the majority of the people seeking aid on these relief works had private stores of their own with which they supplemented the rates, whilst those who had absolutely no money and were weakly and emaciated, received special treatment and were not put to work until recovered.

The universal testimony of the district officers, went to prove that strong people remained strong, and weakly attenuated people recovered strength and flesh, and there can be no doubt that these rates in dealing with large bodies of this class of labourers at all events in the first year of famine are sufficient, *provided*

that care is taken to supplement the rates by the treatment of special cases and by careful attention to seeing that the allowance for young children is drawn and distributed. Regular daily payments are also an important and necessary measure.

Mr. Wingate, C. S., who as 1st Assistant Collector, was in charge during the height of the famine of the worst talukas in the Kaládgi Collectorate, wrote an able minute on this subject which I had much pleasure in submitting to Government as the careful and deliberate opinion of a most conscientious and painstaking officer whose whole soul was in his work, and who took the liveliest interest conceivable in all matters which could ameliorate the condition of the poor people in his charge, and I can from personal observation bear testimony to the fact that during the worst season of the year in the Kaládgi Districts the condition of the labourers on civil agency works, was from the judicious measures taken by Mr. Wingate, in the classification of the gangs and from his extreme care to ensure prompt payments nearly, if not quite as good as the labourers, who, were receiving the higher rate of wages under the Public Works Department. Although it is fair to mention that on these latter works there had been irregularity of payments and the exceptionally bad cases had not received the special treatment as carefully as Government had ordered.

The Chemical Analyser to Government, Dr. Lyon, supported by chemical analyses the theory that the amount of food that could be procured on these rates was sufficient, and though I do not think the question is one that ought to be decided by chemical theory, for I had much rather trust to the practical experience gained by personal observation of the people themselves, yet, there can be no two opinions on the soundness of Dr. Lyon's axiom that in settling dietaries the body weights of the people must be taken into consideration.

Dr. Lyon's memorandum on the question of the probable least quantities of food required to maintain natives in India, in health and strength whilst at labour, light labour, and rest, was published in the *Gazette of India*, of the 19th May 1877, and his memorandum on the dynamic value of the task exacted from labourers on famine relief works in the Bombay Presidency, was published in the *Gazette of India*, of 9th June 1877. These able papers have been republished by Dr. Lyon in his book, 'Food Tables', which forms a valuable contribution to the literature of the subject and adds greatly to our knowledge of the value of Indian food grains.

Although the measures ordered by Government were, in my opinion, as successful as they could be in the treatment of persons who came on to relief-works, the condition of the rural population continued till the end of the famine to be the cause of great anxiety.

The number of villages and area of square miles and the density of population in the affected districts is shewn in the following table :—

Districts.	Population according to Census of 1872.	Number of Towns and Villages in the District.	Area in Square Miles.	Density of Population per square mile.
Khándesh	1,028,642	3,447	10,162	101
Násik	687,353	1,453	7,156	96
Ahmednagar	773,938	1,375	6,647	116
Poona	907,235	1,197	5,099	178
Sholápur	718,034	649	4,509	159
Satara	1,061,002	1,428	4,804	221
Belgaum	938,750	1,134	4,592	204
Dharwar	988,037	1,439	4,565	216
Kaládgi	816,037	1,205	5,698	143
	7,919,028	13,327	53,232	149

The scattered nature of the villages in the worst districts and the sparse population living over extensive areas added immensely to the difficulties of keeping an efficient village inspection; whilst the want of intelligence on the part of the headmen rendered the strict carrying out of the orders of Government a matter of great difficulty. Superadded to this, the prejudices of the people, especially of the Lingáyets who compose 38 per cent. of the population in Dharwar and Kaládgi had to be combated. As an instance, I may mention that at Medliri in the Ránibennur Taluka of Dharwar the very intelligent overseer, himself a Hindu, had erected some capital huts for the accommodation of the labourers, but because these were made of the branches of the brab-palm (Shindi) the Lingayet labourers refused to occupy them. Then again the obstinacy with which the people and especially those of low caste clung to their villages undergoing a process of slow starvation rather than go to relief-works, complicated the question of relief immensely. All that tact and considerate kindness could do to induce them was tried, as I can personally testify, by district officers, but matters did not improve, and Government had in contemplation the passing of an Act empowering district officers forcibly to remove all such persons to relief-houses as the only means of saving their lives.

The general condition of the labourers both on Public and Civil Agency Works was, as I have said, on the whole satisfactory, but far different was the condition of the persons received at the poor houses which were established at the Sadár Stations and at the Head Quarter Stations of each Taluka whilst branch relief-houses were established in each Taluka, wherever needed, generally on main lines of communication and at Towns where there were municipalities. At each of the principal relief-houses there was a Hospital. In some of the Towns it was very large. At Sholápur for example, there were 6 grass shed erected; each shed being 100′ × 20′ was intended to accommodate 50 patients thus allowing each patient 40 superficial feet. The roof was thatched and the sides were made with double mats and were moveable, so that they could be lifted up or let down at pleasure. These sheds were intended to accommodate 300 patients but they were frequently from the large number of sick overcrowded. The Relief house at Sholápur consisted of 4 sheds of the same size as above for 200 inmates, the kitchen being here also. The Hospital was near, but at some little distance from the relief house whilst a relief camp was at the distance of 3 miles from the Town. The relief houses were intended as stated in the Rules sanctioned by Government for the gratuitous distribution of food to the blind, infirm, young children, and very aged, needing relief, but unable to work, and 2ndly for the aid of those able to perform some work but prevented from doing it either from physical inability or other well accepted cause, such as women with children from whom they could not be separated. In these were collected the persons sent by the village Inspectors who were found in a state of destitution in the villages; Persons found wandering over the country without any definite object, from village to village, and from town to town; sick persons who in spite of everything would try to get back to their own villages; Immigrants from the Moglai and Native States; orphan children and such like. Many who came had undergone privation to such an extent before arrival, that they were past recovery when received. These were principally wanderers and persons who, in spite of all the relief officer could do, would persist in clinging to their villages. Others were those who had been deserted by their relatives. Numerous cases of such occurred both among the young and old.

The numbers that came to the relief houses were so great that it was not found practicable to hut the people at every relief house. Many stayed in the towns, villages, and dharamsallas, &c., but shelter was afforded wherever needed. At Kaládgi a very good dharamsalla was erected for these people. This consisted of a mud built and mud roofed building erected on 3 sides of a square. At Bijápur, where the arrangements under the energetic supervision of Mr. Spry C. S. the Collector were admirable in all their details the people were accommodated in the old granary and out houses attached thereto. During a great part of the famine the district officers experienced great difficulties in procuring suitable food for the sick, for milk, which is undoubtedly the best food for infants and for persons so reduced as to be unable to retain solid food, was not procurable over a large

portion of the Southern Mahratta Country. The milch cattle had died or had been driven away in hopes of finding pasture. Goats and asses' milk was not procurable for the want of fodder to feed the animals.

The following ration was given at Belgaum to persons attending the poor-house which they did once a day. Each man received three Bhakaries made of Jowári flour, each women received two such and each child over ten years received one and a half Bhakári, and each child under 10 received one.

The weight of each Bhakári was 6 ozs. so that :—

	lb.	ozs.
A man received	1	2
Woman	...	12
Children over 10	...	9½
„ under 10	...	6

In addition a ladle or tin full (about 9 ozs.) of Mussur dhallsoup was served with the bread, for the children about a pint of gruel was added, and after they were served, what remained was divided amongst the adults. Onions also were given, and milk was served to sick children. To every 12 seers of the Mussur dhall, after boiling, two seers of curry stuff, and one and a half seers of salt was added.

The above ration afforded it was stated an ample meal, and certainly when I saw the people (upwards of 1,000) fed, they appeared to me to have had sufficient, and they certainly were thriving on it. The Belgaum relief house was established by, and was at first under the energetic supervision of, Mr. Shaw, the Zillah Judge, who took the greatest interest in its management and personally superintended all matters of detail and to whom the great success attending this relief-house was owing.

At Bijápur Dr. Wall, Deputy Sanitary Commissioner, drew up an especial scale for young children and for suckling mothers which was adopted wherever possible in the Kaládgi Zillah and which answered well. This was as follows :—

Children ...	Morning meal.	Grain 6 ozs. Milk 4 „ Sugar 4 drs.
	Evening meal— 1 Bread ½ Pint Dhall soup.	6 ozs.

Suckling mothers ...	Morning meal— 1 bread=6 ozs, grain. ½ pint Dhall soup. Evening meal— 2 breads=12 ozs. = 6 ozs. ½ pint Dhall soup.

Government never laid down any dietary, but recommended the adoption of the Belgaum scale at Poor houses, and this was accordingly generally adopted by the various local committees. Exceptionally bad cases received especial treatment, and were fed either once, twice or 3 times a day as was required. The Government orders being that, if made inpatients at a Hospital, they could receive any description of suitable food and hospital comforts.

I would also take this opportunity of saying that as a general rule I was much struck with the great interest taken by the members of the local Committees in devising measures for the amelioration of the condition of the poor people, who sought relief at the Poor houses, and I cannot speak in terms of too high praise of the zeal and devotion evinced by the officers of the Medical Department both in the higher and subordinate grades and among these I must especially notice the eminent services rendered by Dr. Bowman, the Civil Surgeon at Sholápur, and Dr. Greany, the Civil Surgeon at Kaládgi, who were unwearied in their exertions in attending the patients entrusted to their charge.

The returns of sickness and deaths at relief camps and houses were not kept on one uniform plan, nor could they have been. The smaller relief houses were situated in villages, where there was no medical subordinate, and the returns of deaths occurring in them were incorporated in the village registers. Then again relief works were started before a medical subordinate could be sent, and the work at the larger relief camps, that fell to the medical subordinates was it must be remembered, very arduous, as they not only had to attend the sick, but to make frequent inspections of the condition of the people, and of the sanitary state of the camps, the consequence being that their time was so much occupied in more urgent duties, that the returns of sickness were not so accurately kept as was desirable, and would have been possible if there had been a larger staff of medical subordinates: but the strain on the resources of the Medical Department was so severe, that Native Doctors, who too often were found to be most ignorant, had sometimes to be entertained. Then again the scattered nature of the works, especially of those extending for many miles along roads, rendered it a matter of impossibility for the returns to be accurately kept. Returns of sickness were kept at all the larger relief houses, where there were properly educated medical subordinates, and of course at Zillah stations under the Civil Surgeons, and at those works where Assistant Surgeons were employed, but the deductions to be derived from them would be incomplete, as the results would only represent the incidence of sickness among a moiety of the persons who came on relief. *All deaths*, however, whether occurring in villages, towns, relief camps, or relief houses, were I believe reported through the usual channels to the Mámlatdárs of the different Talukas, and were by them incorporated in the general returns of the Taluka. The aggregate number of deaths in the relief camps and houses throughout the famine period have been thus returned:—

Districts.	Deaths in camps on relief works.	Deaths in Relief houses.	Total.	Percentage to total deaths in district.	Percentage to total population.
Khandesh	988	.....	988	3·82	0·09
Násik	1,214	.....	1,214	4·96	0·18
Ahmednagar ...	2,220	258	2,478	8·02	0·31
Poona	62	1,117	1,179	3·46	0·12
Sholápur	784	3,333	4,117	11·74	0·57
Satara	5,330	639	5,969	11·47	0·56
Belgaum	4,778	4,774	9,552	13·60	1·01
Kaládgi	4,725	9,176	13,901	16·55	1·41
Dharwar	7,647	2,142	9,789	11·79	1·11
Total ...	27,748	21,439	49,187	11·27	0·62

With reference to the above table I would notice that as regards Satara, Kaladgi, Belgaum, and Dharwar the relief-camps partook in a great measure of the nature of relief houses, as well as of camps, for labourers. The chief forms of sickness seen at relief houses and camps were diarrhœa, dysentery, fever, anæmia, dropsy, general debility, atrophy, ulcers, whilst cases of scurvy were freqently met the result of the people not having been able to procure vegetables for a lengthened period.

The officers in charge of relief camps exhibited a due appreciation of the necessity for the strict enforcement of sanitary measures, and Government supported my views as strongly as I could desire, and the united testimony from the relief-camps proved conclusively the extreme value of strictness in dealing with this question. I drew up rules for the information and guidance of these officers in charge of relief camps, which were sanctioned by Government, in which I insisted in large standing camps of the vital importance of not over-crowding the people and of allowing thorough perflation of each hut and each row of huts. The huts, until the rains began, consisted principally of booths, made with the

branches of trees, the interstices being filled in with brambles. These answered very well during the fine weather, but during the rains it was necessary to erect rain-proof huts and it was found that date matting dammered over afforded very good protection from the weather. Altogether it may safely be said that the labourers at relief-camps were living under certainly more healthy conditions than in their usual homes and they as a general rule improved in health whilst in camp.

The most constant attention was also paid to the conservancy of the water-supply, and the greatest credit is due to the officers in charge of works for the care and ingenuity displayed in securing an ample supply of good water. The arrangements made by Mr. Burke, Executive Engineer, Irrigation Department, in the Sholápur, Ahmednagar, and for a time in the Kaládgi Districts, were excellent, and whilst perfectly simple, were such that could be carried out in villages with the greatest benefit during every fair season. Much disease was, no doubt, averted by the great and constant attention paid to this matter by the officers, as also by the strict enforcement of the rule of having for latrines shallow earth trenches not more than 9 inches, or at the outside a foot deep dug daily and filled in each day. In many districts no bhungees are procurable, but this difficulty was met by furnishing the labourers with a long bamboo with a scraper at the end, with which each person drew a little earth over what had passed from him, and I am convinced that this method not only could, but ought to be, introduced in all villages in this presidency.

Of course in a review of this nature I have been able only briefly to touch upon the most salient points in the famine administration of this presidency but I must not omit to notice one fact that told in my opinion heavily against the people and that was the very extensive prevalence of syphilis among all classes. At every inspection a very considerable proportion of the children were found to bear traces of hereditary syphilis whilst very large numbers of the men and women shewed unmistakable evidence of their having suffered from the disease. The constitutional effects of this complaint rendered the peasantry of the Southern Mahratta Country less able to withstand the privation they were for so long exposed to and doubtless may fell victims to disease which if their constitutions had been untainted by this disease they would have been able to resist.

I may also record as an interesting fact, though having of course no bearing on the famine, that, at my inspections, I could not help having my attention drawn to the great number of cases of umbilical hernia among the men and children. In not a single instance was any truss worn and no trouble or inconvenience was apparently caused by the protusion of the intestine.

Among the other important events of the year I must mention that shortly after his arrival, His Excellency Sir Richard Temple determined, that the harbour and city of Bombay should no longer be polluted by the admission of sewage and by the constant soakage of filth into the sub-soil and wrote a minute on the subject in which he pointed out the evils to which the city was exposed by being unprovided with any system of sewerage, and accordingly in October a special Commission was appointed by Government to determine the best scheme of drainage for the municipality to adopt within a cost of 50 lakhs of rupees. The report of the Commission was submitted in January 1878 and the conclusions arrived at were as follows :—

1*st*.—That it is essential to the health and well-being of the city that the present defective system of drainage, with all its accompanying nuisances, be done away with, and a complete and effective system on the latest sanitary principles at once carried out.

2*nd*.—That storm and sub-soil water be absolutely separated from sewage.

3*rd*.—That Mr. Walton's proposals for intercepting the storm water in the higher parts of the Island, combined with the enlargement of the Love Grove sluices and the utilization of the existing system of drains solely for storm water, will practically meet the necessities of the case.

4th.—That night-soil may safely be admitted directly into the proposed sewers without depôts.

5th.—That with the exception of sub-soil draining, certain low-lying parts of the town, nothing more in this respect is at present needed.

That the vellard be puddled.

6th.—That the present water-supply is sufficient for the water carriage of the sewage of a population of 650,000; but that should the population hereafter be found largely in excess of this, the corporation should be prepared at once to increase the water-supply.

7th.—That a service reservoir be provided for Vehar, and distribution pipes re-laid where necessary, in order to ensure more constant and regular distribution.

8th.—That house-connections with sewers should, as far as possible, be on the broken joint system.

9th.—That a standard type of water-closet be enforced.

10th.—That public latrines and urinals be established in sufficient numbers for the use of the poorer classes.

11th.—That the cost of these and of the connections with the houses of the poorer class of house-holders be provided for in the estimate.

12th.—That only the best bricks obtainable be used, and that the sewers up to two-thirds their height be built in Portland cement, and that the joints of the pipe drains be laid in Portland cement. That the out-fall be cut into the rock and built in ashlar masonry.

13th.—That great care be taken to ensure the free ventilation of the manholes. That any system of charcoal or other ventilators tending to check the free circulation of air be avoided.

14th.—That the sewage be discharged into the sea at the site proposed by Mr. Pedder without defœcation, but that the new pumping station be erected near the present one.

15th.—That the utilization of sewage on land is at present inadvisable from a financial and sanitary point of view.

16th.—That Mr. Walton's modification of Major Tulloch's scheme of sewerage be adopted, and that it can be carried out within the sum laid down by Government, viz., 50 lakhs.

The scheme approved by the Commission, embraces the sewerage of Malabar Hill, and with this addition is Major Tulloch's scheme as far as Bellasis Road, but on the north of this point, the sullage instead of being carried as recommended by Major Tulloch to the north-east of the island where he proposed to deliver it either at Sion or Coorla, is to be taken across the flats by the existing sewer to the site proposed by Mr. Pedder, where it will be discharged near the present out-fall into the sea on the western foreshore.

Although I do not personally concur with some of the conclusions arrived at by the Commission and cannot approve of the proposed out-fall as I fear that sewage discharged at this point will be thrown back by the currents on to the foreshore and thus render the houses along the Breach and Malabar Hill, unhealthy, yet the scheme has the great advantage of being capable of being extended according to Major Tulloch's suggestions, if the fears above expressed are found to be founded on fact and there can be no doubt whatever, that the carrying out of this sewerage and drainage scheme will add immensely to the sanitary improvement of the native town, and to use the concluding words of the able report of the Commission "not only will the many disgusting

nuisances which now form a blot on the boasted civilization and progress of this great city be removed; but the health and comfort of its population be materially improved without any appreciable increase of taxation."

In bringing this report to a conclusion I have the honour to state that having handed over charge of the Sanitary Commissioner's Office early in May on the return of Mr. Lumsdaine, the sections on Meteorology, Jails, and General History of Vaccination, have been written by him as the statistics regarding them were not ready for compilation during my tenure of the office.

T. G. HEWLETT,

Surgeon Major Bombay Army,

Late Acting Sanitary Commissioner.

APPENDICES.

GENERAL POPULATION AND VITAL STATISTICS.

ANNUAL FORM NO. I.—BIRTHS *registered in the* DISTRICTS *of the* BOMBAY PRESIDENCY *during the Year* 1877.

1	2	3	4			5			6	7	8
No.	DISTRICTS.	Population according to Census of 1872.	Number of Births registered.			Ratio of Births per 1,000 of Population.			Number of Males born to every 100 Females born.	Excess of Births over Deaths per 1,000 of Population.	Excess of Deaths over Births per 1,000 of Population.
			Male.	Female.	Total.	Male.	Female.	Total.			
	Northern Deccan Division.										
1	Khandesh	1,028,642	12,422	10,942	23,364	23·41	21·91	22·71	113·53	..	2·45
2	Násik	687,353	9,149	8,521	17,670	25·96	25·44	25·71	107·37	..	9·88
3	Ahmednagar	773,938	8,858	7,950	16,808	22·41	20·99	21·71	112·00	..	18·28
4	Poona	907,235	7,844	7,308	15,152	16·80	16·60	16·70	107·33	..	17·26
5	Sholápur	718,034	4,764	4,391	9,155	12·90	12·60	12·75	108·50	..	36·06
	Southern Deccan Division.										
6	Satara	1,061,002	12,230	11,434	23,664	22·68	21·92	22·30	106·96	..	26·74
7	Belgaum	938,750	11,549	10,876	22,425	24·12	23·65	23·88	106·19	..	50·95
8	Dharwar	988,037	10,900	10,303	21,203	21·54	21·36	21·46	105·80	..	63·41
9	Kaládgi	816,037	5,953	5,514	11,467	14·73	13·84	14·05	107·96	..	87·72
	Konkan Division.										
10	Kanara	398,406	6,086	5,645	11,731	29·48	29·40	29·44	107·81	..	24·68
11	Ratnágiri	1,019,136	8,237	7,473	15,710	16·77	14·15	15·42	110·09	..	5·47
12	Colába	350,405	2,908	2,708	5,616	16·33	15·71	16·03	107·39	..	1·82
13	Bombay City	644,405	7,113	6,607	13,720	17·80	27·00	21·29	107·66	..	30·26
14	Tanna	847,424	9,770	9,034	18,804	22·25	22·13	22·19	108·15	..	5·67
	Guzerat Division.										
15	Surat	607,087	7,879	7,173	15,052	25·89	23·68	24·79	109·84	..	0·45
16	Broach	350,322	3,861	3,414	7,275	21·16	20·35	20·76	113·06	..	1·36
17	Kaira	782,733	10,894	9,101	19,995	26·09	25·03	25·53	119·70	5·34	..
18	Pánch Máhás	240,743	2,913	2,705	5,618	23·07	23·63	23·34	107·69	8·57	..
19	Ahmedabad	329,637	9,986	8,836	18,822	22·76	22·61	22·68	113·01	2·18	..
	Sind Division.										
20	Kurrachee	423,495	2,286	1,507	3,793	9·52	8·22	8·95	151·69	..	7·49
21	Hyderábad	721,947	3,222	2,027	5,249	8·10	6·25	7·27	158·81	..	4·93
22	Thar and Párkar	180,761	1,860	1,485	3,345	18·01	19·17	18·51	129·00	4·63	..
23	Shikárpur	776,227	3,147	2,154	5,301	7·41	6·12	6·83	146·10	..	2·72
24	Upper Sind Frontier	89,985	431	291	722	8·54	7·36	8·02	148·11	..	0·08
	Total for the Presidency ..	16,181,741	164,262	147,399	311,661	19·40	19·06	19·26	111·46	..	19·54

ANNUAL FORM NO. II.—DEATHS *registered in the* DISTRICTS *of the* BOMBAY PRESIDENCY *during the Year* 1877.

1	2	3	4	5			6	7			8		
No.	DISTRICTS.	Area in Square Miles.	Average Population per Square Mile.	Number of Deaths registered.			Number of Males died to every 100 Deaths of Females	Ratio of Deaths per 1,000 of the Population.			Mean Ratio of Deaths per 1,000 during previous five years.		
				Male.	Female.	Total.		Male.	Female.	Total.	Male.	Female.	Total.
	Northern Deccan Division.												
1	Khandesh	10,162	101·22	14,073	11,812	25,885	119·71	26·46	23·75	25·16	21·60	19·29	20·55
2	Násik	7,156	96·05	12,956	11,510	24,466	112·56	36·76	34·37	35·59	23·62	21·81	22·55
3	Ahmednagar	6,647	116·43	17,207	13,684	30,891	125·74	43·60	36·14	39·94	23·69	21·32	22·51
4	Poona	5,099	177·93	16,860	13,959	30,819	120·75	36·11	31·69	33·96	22·98	21·58	22·39
5	Sholápur	4,509	159·24	19,923	15,131	35,054	131·67	53·95	43·39	48·81	22·04	20·06	21·06
	Southern Deccan Division.												
6	Satara	4,804	220·86	29,051	22,982	52,033	126·42	53·86	44·05	49·04	22·41	21·71	22·11
7	Belgaum	4,592	204·43	40,095	30,149	70,244	132·98	83·72	65·56	74·83	25·65	23·53	24·71
8	Dharwar	4,565	216·44	48,054	35,803	83,857	134·22	94·10	74·28	84·87	26·88	26·64	26·97
9	Kaládgi	5,696	143·26	47,288	35,765	83,053	132·22	113·23	89·77	101·77	20·69	19·30	19·92
	Konkan Division.												
10	Kanara	4,235	94·07	11,714	9,847	21,561	119·00	56·75	51·29	54·12	28·34	27·53	27·82
11	Ratnágiri	4,512	225·87	11,112	10,177	21,289	109·18	22·63	19·27	20·89	14·43	12·84	13·88
12	Colába	1,504	232·85	3,322	2,932	6,254	113·30	18·66	17·00	17·85	14·15	12·24	13·21
13	Bombay City	22	29,291·13	17,596	15,627	33,223	112·60	44·02	63·86	51·55	23·66	32·99	27·81
14	Tanna	4,052	209·14	12,665	10,946	23,611	115·70	28·84	26·81	27·86	21·94	22·06	21·01
	Guzerat Division.												
15	Surat	1,630	372·33	8,036	7,289	15,325	110·23	26·41	24·07	25·24	24·74	29·70	29·06
16	Broach	1,363	257·02	4,149	3,602	7,751	115·18	22·73	21·47	22·12	24·51	22·38	23·47
17	Kaira	1,561	501·43	8,637	6,759	15,396	129·26	20·60	18·59	20·19	24·43	23·09	23·80
18	Pánch Máhás	1,644	146·44	1,972	1,585	3,557	124·41	15·61	13·85	14·77	16·91	16·21	16·12
19	Ahmedabad	3,844	215·80	9,241	7,768	17,009	119·00	21·06	19·87	20·50	25·96	24·96	25·33
	Sind Division.												
20	Kurrachee	14,092	30·05	4,157	2,808	6,965	148·04	17·31	15·31	16·44	15·63	13·22	14·42
21	Hyderabad	9,052	79·75	5,277	3,533	8,810	149·36	13·27	10·90	12·20	12·94	8·96	10·72
22	Thar and Párkar	12,729	14·20	1,422	1,087	2,509	133·22	13·75	14·03	13·88	6·11	5·67	5·93
23	Shikárpur	8,813	88·08	4,341	3,076	7,417	141·12	10·22	8·74	9·55	8·36	7·40	7·82
24	Upper Sind Frontier	1,913	48·37	382	347	729	110·09	7·57	8·78	8·10	7·32	6·49	6·98
	Total for the Presidency ..	124,196	130·29	349,530	278,178	627,708	125·63	41·32	36·01	38·79	21·78	20·79	21·01

N.B.—Those born dead are not to be included in this or any of the other Statements.

ANNUAL FORM NO. III.—DEATHS *registered in the* DISTRICTS *of the* BOMBAY PRESIDENCY *during each Month of the Year* 1877.

1	2	3												4	5
No.	DISTRICTS.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total Deaths registered during the Year.	No.
	Northern Deccan Division.														
1	Khandesh	3,077	2,513	2,633	2,603	2,128	1,393	1,933	3,183	2,032	1,437	1,569	1,384	25,885	1
2	Násik	2,183	1,687	2,183	2,033	1,843	1,550	2,164	2,935	2,335	1,978	1,987	1,598	24,466	2
3	Ahmednagar	1,682	1,524	2,192	2,138	2,385	2,527	3,386	3,302	3,701	3,325	2,699	2,030	30,891	3
4	Poona	1,909	1,619	2,385	2,631	2,993	2,642	3,441	3,103	2,506	2,597	2,534	2,459	30,819	4
5	Sholápur	1,332	1,411	1,418	1,584	2,106	2,488	3,139	4,782	5,758	4,546	4,336	2,154	35,054	5
	Southern Deccan Division.														
6	Satara	1,812	1,657	2,700	4,813	4,888	5,256	6,221	6,572	5,499	5,071	4,319	3,225	52,033	6
7	Belgaum	3,744	3,604	5,393	4,919	6,243	6,854	7,835	9,255	7,776	5,691	4,506	4,424	70,244	7
8	Dharwar	4,538	5,124	5,834	5,177	5,358	5,945	8,034	10,576	10,758	8,782	7,177	6,599	83,857	8
9	Kaládgi	2,100	2,454	3,561	5,066	6,108	6,477	8,333	9,755	11,555	10,874	10,434	6,336	83,053	9
	Konkan Division.														
10	Kanara	1,469	1,160	1,751	1,569	1,336	1,448	1,887	2,536	2,506	2,129	1,956	1,814	21,561	10
11	Ratnágiri	1,395	1,311	1,463	1,560	1,411	2,330	3,215	2,455	1,868	1,444	1,384	1,453	21,289	11
12	Colába	444	330	559	461	493	941	741	754	450	336	395	350	6,254	12
13	Bombay City	2,056	2,227	3,005	3,457	3,526	3,334	2,767	2,902	2,879	2,628	2,174	2,268	33,223	13
14	Tanna	1,617	1,451	1,595	1,883	2,365	2,053	2,234	2,375	1,923	1,748	2,006	2,661	23,611	14
	Guzerat Division.														
15	Surat	1,475	1,443	1,960	1,608	1,238	1,059	1,123	1,389	1,111	1,012	1,025	882	15,325	15
16	Broach	470	602	918	924	814	523	606	518	522	626	719	509	7,751	16
17	Kaira	1,141	1,005	1,371	1,430	1,319	1,158	1,259	1,178	1,158	1,385	1,608	1,384	15,396	17
18	Panch Máháls	391	233	366	309	231	264	318	253	247	204	379	362	3,557	18
19	Ahmedabad	1,422	1,253	1,675	1,695	1,545	1,201	1,116	1,069	1,182	1,393	1,800	1,658	17,009	19
	Sind Division.														
20	Kurrachee	891	749	717	578	536	452	410	424	396	578	600	724	6,965	20
21	Hyderabad	1,051	1,011	1,080	808	699	508	460	513	533	612	698	847	8,810	21
22	Thar and Párkar	179	247	246	269	248	152	143	119	167	158	192	389	2,509	22
23	Shikárpur	902	683	683	622	580	474	503	475	514	674	663	644	7,417	23
24	Upper Sind Frontier	86	77	82	59	70	51	53	60	40	48	42	56	729	24
	Total for the Presidency	37,166	35,375	45,770	47,996	50,458	51,080	61,321	70,183	67,411	59,236	55,207	46,510	627,708	
	Ratio of Deaths per 1,000 in each Month	2·24	2·19	2·83	2·96	3·12	3·16	3·79	4·34	4·17	3·66	3·41	2·85	38·79	

ANNUAL FORM NO. IV.—DEATHS *Registered according to age in the different* DISTRICTS *of the* BOMBAY PRESIDENCY *during the Year* 1877

1	2	3		4	5	6		7		8		
No.	DISTRICT.	Infants (Children unable to walk.)		Boys.	Girls.	Adults.		Old People.		Total.		
		Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Total.
	Northern Deccan Division.											
1	Khandesh	4,203	3,631	4,143	3,750	3,530	2,690	2,197	1,741	14,073	11,812	25,885
2	Násik	2,966	2,774	3,952	3,597	3,699	3,047	2,339	2,092	12,956	11,510	24,466
3	Ahmednagar	2,528	2,207	4,347	3,835	4,924	3,626	5,348	4,016	17,207	13,684	30,891
4	Poona	1,270	1,191	4,595	3,732	7,010	5,708	3,985	3,328	16,860	13,959	30,819
5	Sholápur	1,613	1,301	4,596	3,930	7,460	5,426	6,254	4,474	19,923	15,131	35,054
	Southern Deccan Division.											
6	Satára	2,734	2,305	7,525	6,487	8,135	6,095	10,657	8,095	29,051	22,982	52,033
7	Belgaum	3,066	2,749	10,834	9,429	15,252	9,385	10,943	8,586	40,095	30,149	70,244
8	Dharwar	4,433	4,068	11,577	9,667	19,867	12,967	12,177	9,101	48,054	35,803	83,857
9	Kaládgi	3,643	3,130	8,789	7,432	23,409	15,610	11,447	9,593	47,288	35,765	83,053
	Konkan Division.											
10	Kanara	1,638	1,387	2,035	2,022	5,806	4,528	2,235	1,910	11,714	9,847	21,561
11	Ratnágiri	805	723	1,803	1,667	4,468	3,997	4,036	3,820	11,112	10,177	21,289
12	Colába	458	352	864	759	1,660	1,461	340	360	3,322	2,932	6,254
13	Bombay City	4,006	3,775	3,611	3,775	7,709	5,900	2,270	2,177	17,596	15,627	33,223
14	Tanna	2,061	1,973	3,315	2,968	5,075	3,956	2,314	2,049	12,665	10,946	23,611
	Guzerat Division.											
15	Surat	1,635	1,514	2,133	1,976	2,796	2,431	1,472	1,368	8,036	7,289	15,325
16	Broach	1,019	959	1,151	950	1,300	1,047	679	646	4,149	3,602	7,751
17	Kaira	2,819	2,322	1,207	868	2,738	2,008	1,873	1,561	8,637	6,759	15,396
18	Panch Máhals	359	331	457	345	700	516	456	393	1,972	1,585	3,557
19	Ahmedabad	2,226	1,775	2,408	2,018	2,869	2,385	1,738	1,590	9,241	7,768	17,009
	Sind Division.											
20	Kurrachee	735	545	581	480	1,904	1 215	937	568	4,157	2,808	6,965
21	Hyderabad	945	740	702	540	2,259	1,366	1,371	887	5,277	35,33	8,810
22	Thar and Párkar	290	276	160	159	375	291	597	361	1,422	1,087	2,509
23	Shikárpur	647	513	661	470	2,010	1,371	1,023	722	4,341	3,076	7,417
24	Upper Sind Frontier	37	50	51	37	220	188	74	72	382	347	729
	Total for the Presidency	46,196	40,591	81,397	70,893	135,175	97,184	86,762	69,510	349,530	278,178	627,708

N.B.—Information about deaths according to the new Classification of ages was not received from all the District Officers, hence this form instead of the new one has been adopted.

ANNUAL FORM No. V.—DEATHS *registered according to* CLASSES *in the* DISTRICTS *of the* BOMBAY PRESIDENCY *during the Year* 1877.

1	2	3					4					5				
		Population according to Census of 1872.					Number of Deaths registered.					Ratio of Deaths per 1,000 of Population				
No.	DISTRICTS.	Mahomedans.	Hindus.	Christians.	Other Classes.	Total.	Mahomedans.	Hindus.	Christians.	Other Classes.	Total.	Mahomedans.	Hindus.	Christians.	Other Classes.	Total.
	Northern Deccan Division.															
1	Khandesh	79,359	948,279	517	487	1,028,642	2,005	23,778	4	98	25,885	25·27	25·06	7·74	201.23	25·16
2	Násik	31,663	646,790	1,063	7,837	687,353	1,313	22,733	19	401	24,466	40·84	32·79	17·77	51·16	35·59
3	Ahmednagar	42,436	729,367	941	1,195	773,938	1,632	28,968	83	208	30,891	38·46	39·69	88·20	174·08	39·94
4	Poona	39,583	862,165	3,862	1,625	907,235	1,247	29,328	87	157	30,819	31·50	34·01	22·53	96·61	33·96
5	Sholápur	50,655	666,985	319	75	718,034	2,581	31,998	6	469	35,054	50·95	47·97	18·81	..	48·81
	Southern Deccan Division.															
6	Satára	34,957	1,025,349	600	96	1,061,002	1,671	50,261	24	177	52,033	44·94	49·02	40·00	..	49·03
7	Belgaum	71,386	862,215	5,067	82	938,750	5,633	64,120	271	220	70,244	78·91	74 37	53·48	..	74·83
8	Dharwar	114,087	872,390	1,522	38	988,037	11,050	30,598	169	2,040	83,857	96·85	89·24	111·04	..	84·87
9	Kaládgi	87,399	728,585	52	1	816,037	8,675	71,542	5	2,831	83,053	99·26	98·19	96·15	..	101·77
	Konkan Division.															
10	Kanara	21,755	364,290	12,189	172	398,406	1,581	19,299	543	138	21,561	72·67	52·98	44·55	..	54·12
11	Ratnágiri	74,834	940,885	3,244	173	1,019,136	1,769	19,479	68	173	21,289	23·65	20·49	20·96	..	20·89
12	Colába	17,194	330,914	208	2,089	350,405	427	5,723	3	101	6,254	24·83	17·26	14·42	48·35	17·85
13	Bombay City	137,644	423,801	34,724	48,236	644,405	6,231	24,838	919	1,235	33,223	45·28	58·61	26·47	25·60	51·55
14	Tanna	38,835	765,886	37,029	5,674	847,424	896	21,761	842	112	23,611	23·07	28·41	22·74	19·74	27·86
	Guzerat Division.															
15	Surat	52,157	541,738	334	12,858	607,087	1,362	13,634	10	319	15,325	26·60	25·17	29·94	24·81	25·24
16	Broach	69,033	277,032	86	4,171	350,322	1,746	5,900	3	102	7,751	25·29	21·29	34·90	24·45	22·12
17	Kaira	70,741	711,619	305	68	782,733	1,302	14,081	9	4	15,396	16·99	19 78	29·51	59·00	20·19
18	Panch Máhals	14,921	225,775	36	17	240,743	207	3,349	..	1	3,557	13·87	14·83	..	58·82	14·77
19	Ahmedabad	81,373	747,027	650	587	829,637	2,018	14,768	15	208	17,009	24·80	19·77	28·08	354·34	20·50
	Sind Division.															
20	Kurrachee	347,551	72,517	2,643	784	423,495	5,232	1,646	30	57	6,965	15·05	22·70	11·35	75·60	16·44
21	Hyderabad	558,272	102,613	391	60,671	721,947	6,146	2,630	18	46	8,810	11·01	25·34	46·03	0·75	12·20
22	Thar and Párkar	96,604	62,500	35	21,622	180,761	1,249	1,061	..	199	2,509	10·94	13·82	..	9·20	13·88
23	Shikárpur	628,662	146,482	238	845	776,227	5,195	2,201	2	19	7,417	8·26	15·02	8·40	22·49	9·55
24	Upper Sind Frontier	81,177	8,715	22	71	89,985	518	203	..	8	729	6·38	23·29	..	112·68	8·10
	Total of the Presidency	2,842,277	13,063,919	106,071	169,474	16,181,741	74,586	543,669	3,130	9,323	627,708	25·12	44·59	29·50	55·00	38·79

N.B.—"Hindus" include Jains as well as all castes professing Hinduism. "Other Classes" include Parsis, Chinese and Jews.

ANNUAL FORM No. VI.—DEATHS *registered from* DIFFERENT CAUSES *in the* DISTRICTS *and* TOWNS *of the* BOMBAY PRESIDENCY *during the Year* 1877.

1	2	3	4	5	6	7	8					9	10	11							12
							Injuries.							Ratio of Deaths per 1,000 of Population.							
No.	DISTRICTS AND TOWNS.	Population according to Census of 1872.	Cholera.	Small-pox.	Fevers.	Bowel Complaints.	Suicide.		Wounding or Accident.	Snake-bite or killed by Wild Beasts.	Total.	All other Causes.	Total Deaths from all Causes.	Cholera.	Small-pox.	Fevers.	Bowel Complaints.	Injuries.	All other Causes.	From all Causes.	No
							Males.	Females.												For the Year.	Mean of previous five years.	
	A.—DISTRICTS.																				
	Northern Deccan Division.																				
1	Khandesh	985,308	1,597	5,548	13,824	2,989	14	9	234	45	302	663	24,923	1·61	5·63	14·04	3·03	0·31	0·67	25·29	16·21	1
2	Násik	642,322	1,726	3,122	13,899	1,633	4	9	117	18	148	1,448	21,975	2·68	4·86	21·64	2·54	0·23	2·25	34·21	21·34	2
3	Ahmednagar	727,136	2,488	1,802	18,410	2,754	9	17	149	12	187	2,704	28,345	3·45	2·48	25·31	3·83	0·26	3·75	39·38	22·15	3
4	Poona	778,051	3,184	1,020	17,401	2,061	14	18	217	21	267	2,203	26,136	4·09	1·06	22·36	2·65	0·34	2·83	33·59	21·83	4
5	Sholápur	629,796	1,194	856	15,265	3,626	9	12	201	2	224	6,371	27,536	1·86	1·36	24·24	5·76	0·36	10·15	43·72	19·31	5
	Southern Deccan Division.																				
6	Satara	1,014,046	6,413	861	30,634	7,448	29	33	366	42	470	4,163	50,189	6·32	0·85	30·70	7·34	0·46	4·10	49·49	21·86	6
7	Belgaum	882,273	7,867	1,012	23,861	5,383	54	79	326	27	486	25,757	64,366	8·92	1·15	27·00	6·10	0·55	29·19	72·95	22·43	7
8	Dharwar	892,282	7,836	2,245	38,017	11,954	94	95	350	16	555	17,077	77,684	8·78	2·52	42·61	13·39	0·62	19·14	87·06	26·52	8
9	Kaládgi	809,445	7,022	780	41,220	6,102	77	123	292	16	478	25,668	81,270	8·67	0·96	50·92	7·54	0·59	31·71	100·40	29·99	9
	Konkan Division.																				
10	Kanara	374,211	2,628	455	10,427	2,290	16	23	174	44	257	4,820	20,877	7·02	1·21	27·86	6·12	0·68	12·88	56·79	28·73	10
11	Ratnágiri	993,526	2,973	1,158	8,294	1,847	11	24	282	103	420	5,861	20,553	2·99	1·17	8·35	1·86	0·43	5·90	20·70	13·54	11
12	Colába	338,301	1,025	289	3,092	301	3	4	91	19	117	968	5,792	3·03	0·85	9·14	0·30	0·35	2·86	17·12	12·75	12
13	Tanna	809,485	2,835	1,274	15,094	408	18	21	293	133	465	2,170	22,246	3·50	1·57	18·65	0·50	0·57	2,68	27·48	16·66	13
	Guzerat Division.																				
14	Surat	488,623	626	1,738	7,318	1,251	7	9	191	47	254	1,106	12,293	1·28	3·55	14·98	2·56	0·52	2·26	25·16	27·63	14
15	Broach	298,466	182	734	4,491	415	3	4	50	28	85	460	6,367	0·61	2·46	15·04	1·39	0·28	1·54	21·33	25·35	15
16	Kaira	719,305	203	116	10,858	1,557	16	18	197	92	323	906	13,963	0 28	0·16	15·09	2·16	0 95	1·26	19·41	23·63	16
17	Panch Máhals	218,630	105	30	2,761	113	2	5	53	61	121	44	3,174	0·48	0·14	12·63	0·51	0·55	0·20	14·53	15·73	17
18	Ahmedabad	660,795	157	136	7,683	632	10	12	156	59	237	1,435	10,280	0·24	0·20	11·63	0·96	0·36	2·17	15·56	21·64	18
	Sind Division.																				
19	Kurrachee	369,969	..	99	4,633	23	6	2	174	104	286	832	5,873	..	0·27	12·52	0·06	0·77	2·25	15·87	11·64	19
20	Hyderabad	686,675	..	218	5,951	74	4	4	225	213	446	557	7,246	..	0·32	8·66	0·11	0·65	0·81	10·55	10·06	20
21	Thar and Párkar	176,762	..	8	2,140	51	1	1	29	57	88	132	2,419	..	0·05	10·21	0·24	0·49	0·59	11·58	6·84	21
22	Shikárpur	714,159	..	..	5,525	155	8	11	167	54	240	352	6,272	..	..	7·73	0·21	0·33	0·49	8·77	8·97	22
23	Upper Sind Frontier	84,780	...	1	486	6	1	1	24	9	35	16	543	...	..	5·73	0·59	0·41	0·19	6·41	6·91	23
	Total of Districts	14,294,346	50,060	23,502	301,484	53,072	407	534	4,328	1,222	6,491	105,713	540,322	3·50	1·64	21·07	3·71	0·45	7·39	37·79	29·29	

ANNUAL FORM No. VI.—DEATHS *registered from* DIFFERENT CAUSES *in the* DISTRICTS *and* TOWNS *of the* BOMBAY PRESIDENCY *during the Year* 1877—*continued.*

1	2	3	4	5	6	7	8					9	10	11							12
							Injuries.							Ratio of Deaths per 1,000 of Population.							
							Suicide.												From all Causes.		
No.	Districts and Towns.	Population according to Census of 1872.	Cholera.	Small-pox.	Fevers.	Bowel Complaints.	Males.	Females.	Wounding or Accident.	Snake-bite or killed by Wild Beasts	Total.	All other Causes.	Total Deaths from all Causes.	Cholera.	Small-pox.	Fevers.	Bowel Complaints.	Injuries.	All other Causes.	For the year.	Mean of previous five Years.	No.
	B.—TOWNS.																				
	Khandesh District.																				
1	Dhulia	12,489	74	43	99	29	1	..	3	..	4	12	252	5·92	3·44	8·00	1·60	0·32	0·96	20·18	13·22	1
2	Nandurbár	7,205	..	46	85	27	..	1	3	2	6	..	164	..	6·38	11·79	3·75	0·83	..	22·76	15·01	2
3	Chopra	13,699	..	86	125	..	..	..	1	1	2	2	215	..	6·20	9·12	..	0·15	0·15	15·69	10·32	3
4	Nusseerabad	9,941	23	51	253	1	2	..	..	..	2	1	331	1·71	5·13	25·25	0·10	0·20	0·10	32·69	16·22	4
	Násik District.																				
5	Násik	22,436	158	123	597	94	1	..	9	1	11	450	1,438	7·04	5·70	26·61	4·49	0·49	20·07	64·19	46·83	5
6	Yeola	17,461	66	179	277	24	1	1	4	..	6	267	819	3·78	10·25	15·86	1·37	0·34	15·29	46·90	30·50	6
7	Deolálí Cantonment	894	..	1	30	1	..	..	..	..	..	4	36	..	1·12	33·55	1·12	..	4·48	40·27	17·15	7
8	Málegaon do.	4,240	14	1	96	12	..	..	..	..	..	75	198	3·30	0·23	22·64	2·83		17·69	46·69	38·58	8
	Ahmednagar District.																				
9	Ahmednagar	32,841	195	123	802	115	..	..	5	..	5	850	2,080	5·63	3·74	24·42	3·50	0·15	25·88	63·33	38·86	9
10	Sangamner	9,978	37	53	146	11	..	1	2	..	3	68	368	3·72	5·31	14·63	1·10	0·30	6·61	36·90	21·86	10
11	Ahmednagar Cantonment	3,983	..	..	66	4	..	..	1	..	1	27	98	..	..	16·57	1·00	0·25	6·77	24·60	23·09	11
	Poona District.																				
12	Poona City	90,436	469	211	1,709	53	5	5	43	..	53	1,067	3,502	4·52	2·33	18·89	0·58	0·58	11·79	38·72	27·43	12
13	Junnar	10,298	24	44	99	25	..	..	..	..	..	59	251	2·33	4·27	9·61	2·43	..	5·73	24·37	14·58	13
14	Poona and Kirkee Cantonment	28,450	56	37	544	131	2	1	7	..	10	152	930	1·97	1·30	19·12	4·60	0·35	5·31	32·69	17·17	14
	Sholápur District.																				
15	Sholapur	53,403	29	136	1,010	277	3	4	29	2	38	2,736	4,226	0·54	2·55	18·91	5·19	0·71	51·23	79·13	29·74	15
16	Bársi	18,560	55	58	283	30	..	..	20	..	20	1,165	1,611	3·00	3·12	15·00	1·61	1·08	62·76	86·80	29·38	16
17	Pandharpur	16,275	76	30	383	1,083	2	2	2	..	6	103	1,681	4·67	1·84	23·54	66·54	0·37	6·33	103·28	39·53	17
	Satara District.																				
18	Satara	24,484	54	25	434	292	1	2	5	2	10	240	1,055	2·21	1·02	17·73	11·93	0·41	9·84	43·13	29·15	18
19	Karád	11,410	90	15	113	25	..	..	5	..	5	94	342	7·88	1·31	9·90	2·11	0·44	8·24	29·97	20·90	19
20	Wai	11,062	145	49	174	31	..	..	2	1	3	45	447	13·11	4·43	15·73	2·80	0·27	4·07	40·41	25·38	20
	Belgaum District.																				
21	Belgaum	26,947	197	53	808	129	2	2	4	1	9	941	2,137	7·31	1·97	29·89	4·78	0·33	34·92	79·30	28·77	21
22	Gokák	12,612	94	23	246	25	..	..	9	..	9	1,095	1,192	7·45	1·82	19·50	1·98	0·71	86·82	118·14	25·71	22
23	Athni	11,588	172	16	257	37	2	2	13	..	17	1,411	1,910	14·84	1·39	22·18	3·88	1·47	121·76	164·85	28·37	23
24	Belgaum Cantonment	5,330	27	8	95	58	2	..	6	..	9	143	339	5·07	1·50	17·64	10·19	1·50	27·00	63·60	30·29	24
	Dharwar District.																				
25	Dharwar	27,136	283	134	547	55	4	5	14	..	23	720	1,762	10·43	4·94	20·15	2·03	0·85	26·53	64·12	23·36	25
26	Hubli	37,961	241	107	692	68	11	15	21	..	47	672	1,827	6·35	2·82	18·23	1·80	1·24	17·61	48·03	31·72	26
27	Gadag Bettigeri	19,035	340	21	397	107	1	1	9	..	11	952	1,828	17·86	1·10	20·86	5·62	0·57	50·13	96·03	20·38	27
28	Ránibennur	11,623	79	135	262	46	3	9	10	..	22	212	756	6·80	11·61	22·54	4·00	1·90	18·24	65·05	26·35	28
	Kaládgi District.																				
29	Kaládgi	6,592	101	21	28	..	1	1	8	..	10	1,622	1,782	15·30	3·19	4·25	..	1·52	246 06	270·73	13·16	29
30	Do. Cantonment	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	5·39	30
	Kanara District																				
31	Karwar	13,263	69	..	175	7	..	..	3	..	3	140	394	5·20	..	13·19	0·53	0·23	10·53	29·70	19·71	31
32	Coompta	10,932	107	18	60	48	..	..	2	..	2	56	290	9·60	1·65	5·50	4·39	0·19	5·03	26·53	19·28	32
	Ratnágiri District.																				
33	Vingorla	14,996	29	3	111	153	1	2	7	..	10	89	395	1·93	0·20	7·40	10·20	0·67	5·94	26·34	12·82	33
34	Ratnágiri	10,614	123	78	44	9	..	1	1	1	3	84	341	11·59	7·35	4·15	0·90	0·30	7·91	32·20	12·61	34
	Colába District.																				
35	Alibág	5,473	8	34	89	8	1	1	4	..	6	61	206	1·46	6·41	16·26	1·46	1·09	11·15	37·64	24·62	35
36	Mahád	6,631	91	10	100	3	1	..	10	..	11	41	256	13·72	1·51	15·08	0·45	1·66	6·18	38·61	18·83	36
	Tanna District.																				
37	Tanna	14,299	172	..	205	52	..	1	1	..	2	47	478	12·03	..	14·34	3·64	0·14	3·29	33·29	27·35	37
38	Kalyán	12,804	100	25	249	2	..	..	8	..	8	12	398	7·81	1·97	19 37	0·16	0·63	0·94	30·93	23·84	38
39	Panwel	10,836	230	2	198	40	..	1	7	..	8	13	491	21·23	0·18	18·28	3·70	0·74	1·20	45·31	23 92	39
	Bombay District.																				
40	Bombay City	644,405	2,510	953	12,788	3,545	45	32	270	4	351	13,076	33,223	3·90	1·48	19·84	5·50	0·54	20·29	51·55	27·64	40
	Surat District.																				
41	Surat	107,149	144	430	1,488	16	6	3	23	1	33	605	2,716	1·35	4·01	13·88	0·15	0·31	5·65	25·35	24·42	41
42	Bulsar	11,315	208	25	59	19	..	..	5	..	5	..	316	18·38	2·21	5·21	1·68	0·44	..	27·94	19·10	42
	Broach District.																				
43	Broach	36,932	120	288	693	20	..	..	19	1	20	142	1,283	3·25	7·79	18·76	0·54	0·54	3·84	34·74	13·38	43
44	Jambusar	14,924	..	14	69	2	..	..	10	5	15	1	101	..	0·94	4·62	0·13	1·00	0·07	6·76	13·17	44

N.B.—Districts A in this Statement should not include the population or deaths of Towns B. In all the other Statements "Districts" include Towns. Towns should include one or more of the principal Towns in each District.

ANNUAL FORM NO. VI.—DEATHS *registered from* DIFFERENT CAUSES *in the* DISTRICTS AND TOWNS *of the* BOMBAY PRESIDENCY *during the Year* 1877—*concluded.*

1	2	3	4	5	6	7	8					9	10	11							12
							Injuries.							Ratio of Deaths per 1,000 of Population.							
							Suicide.												From all Causes.		
No.	Districts and Towns.	Population according to Census of 1872.	Cholera.	Small-pox	Fevers.	Bowel Complaints.	Males.	Females.	Wounding or Accident.	Snake-bite or killed by wild Beasts.	Total.	All other Causes.	Total deaths from all Causes	Cholera.	Small-pox.	Fevers.	Bowel Complaints.	Injuries	All other Causes.	For the Year.	Mean of previous five years.	No.
	B.—TOWNS—*continued.*																				
	Kaira District.																				
45	Kaira	12,681	..	..	80	12	..	..	3	..	3	30	125	..	..	6·31	0·92	0·24	2·35	9·86	19·75	45
46	Nariád	24,551	2	..	357	224	2	1	7	3	13	1	597	0·08	..	14·54	9·15	0·04	0·53	24·32	21·96	46
47	Borsad	12,214	..	9	275	17	..	1	6	1	8	..	309	..	0·74	22·51	1·39	0·65	..	25·29	19·81	47
48	Kapadwanj	13,982	..	..	342	..	..	..	1	4	5	55	402	..	..	24·46	..	0·40	3·93	28·75	24·42	48
	Panch Máhál District.																				
49	Godhra	10,641	58	1	134	7	1	..	10	..	11	..	211	5·45	0·09	12·58	0·65	1·03	..	19·81	18·96	49
50	Dohad	11,472	13	10	142	1	1	2	1	1	5	1	172	1·30	0·87	12·38	0·09	0·44	0·09	15·00	18·33	50
	Ahmedabad District.																				
51	Ahmedabad	116,873	103	5	3,325	78	1	2	99	2	104	1,970	5,585	0·88	0·04	28·45	0·67	0·89	16·86	47·78	48·87	51
52	Gógo	9,571	1	..	78	21	..	..	1	..	1	91	192	0·10	..	8·15	2·19	0·10	9·51	20·06	16·41	52
53	Viramgám	19,661	..	..	373	5	..	2	4	..	6	137	522	..	0·05	18·97	0·25	0·30	6·97	26·55	23·21	53
54	Dholka	20,854	16	1	241	23	..	1	7	1	9	24	314	0·76	0·05	11·56	1·10	0·43	1·63	15·08	14·20	54
55	Ahmedabad Cantonment	1,983	8	1	55	12	..	..	..	..	..	40	116	4·25	0·53	29·21	6·37	..	21·24	61·60	43·42	55
	Kurrachee District.																				
56	Kurrachee	55,326	..	52	717	23	2	1	14	..	17	283	1,092	..	0·97	13·39	0·43	0·32	5·29	20·41	11·64	56
	Hyderabad District.																				
57	Hyderabad	35,272	..	68	1,177	1	1	..	3	..	4	314	1,564	..	1·93	33·37	0·03	0·11	8·90	44·34	38·81	57
	Thar and Párkar District.																				
58	Umarkot	3,999	..	..	85	..	..	..	1	2	3	2	90	..	..	21·26	..	0·75	0·50	22·53	5·93	58
	Shikárpur District.																				
59	Shikárpur	38,107	..	..	641	18	3	1	10	3	17	125	801	..	..	16·82	0·47	0·44	3·28	21·02	23·69	59
60	Sukkur	13,318	..	..	137	29	..	..	13	..	13	55	234	..	..	9·83	2·18	0·97	4·13	17·57	20·43	60
61	Lárkána	10,643	..	..	91	1	..	..	6	..	6	12	110	..	..	8·55	0·09	0·57	1·14	10·34	11·48	61
	Upper Sind Frontier District.																				
62	Jacobabad	5,205	..	5	146	8	..	1	4	..	5	22	186	..	0·96	28·00	1·54	0·96	4·22	35·73	34·80	62
	Total of Towns..	1,887,395	7,192	3,867	35,381	7,185	109,105	795	39	1,048		32,713	87,386	3·80	2·05	18·75	3·81	0·54	17·33	46·29	28·75	
	Total for the Presidency..	16,181,741	57,252	27,369	336,865	60,257	516,639	5,123	1,261	7,539		138,426	627,708	3·53	1·69	20·79	3·72	0·46	8·55	38·76	21·01	

ANNUAL FORM NO. VII.—DEATHS *registered from* CHOLERA *in the* DISTRICTS *of the* BOMBAY PRESIDENCY *during each Month of the Year* 1877.

1	2	3		4		5												6			7			8	10
		Circles of Registration.		Villages.														Total.			Ratio of Deaths per 1,000 of Population.				
No.	Districts.	No. in each District.	No. from which Deaths from Cholera were reported.	No. in each District.	No. from which Deaths from Cholera were reported.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Males.	Females.	Total.	Males.	Females	Total.	Mean Ratio per 1,000 of previous five years.	No.
	Northern Deccan Division.																								
1	Khandesh	26	20	..	*	..	..	..	..	..	..	477	986	221	4	6	..	919	775	1,694	1·67	1·58	1·64	1·54	1
2	Násik	15	14	..	..	..	..	..	4	111	192	548	620	351	76	39	22	1,088	875	1,963	3·09	2·56	2·87	0·81	2
3	Ahmednagar	14	14	..	..	2	6	53	166	353	640	992	247	102	166	29	4	1,569	1,251	2,760	3·79	3·29	3·57	2·03	3
4	Poona	11	11	..	..	213	107	198	379	721	611	899	439	34	29	7	36	1,978	1,695	3,673	4·22	3·84	4·01	2·03	4
5	Sholapur	10	10	..	..	174	188	22	66	287	383	90	48	32	53	2	9	765	591	1,356	2·03	1·68	1·85	2·10	5
	Southern Deccan Division.																								
6	Satara	15	15	..	..	20	52	412	1,879	1,545	1,616	859	138	29	135	15	2	3,684	3,018	6,702	6·83	5·97	6·32	1·36	6
7	Belgaum	11	11	..	..	1,098	1,076	2,223	1,185	1,403	844	218	57	5	5	13	230	4,632	3,725	8,357	9·67	8·10	8·89	1·74	7
8	Dharwar	18	13	..	..	1,542	1,941	2,112	1,648	928	431	123	5	36	9	4	..	4,957	3,822	8,779	9·79	7·93	8·89	1·84	8
9	Kaládgi	10	9	..	..	542	797	1,356	1,986	1,529	549	126	158	78	3	..	..	3,975	3,149	7,124	9·52	7·90	8·73	2·01	9
	Konkan Division.																								
10	Kanara	13	13	972	763	142	152	324	426	205	219	363	405	229	177	111	51	1,518	1,286	2,804	7·36	6·70	7·04	0·48	10
11	Ratnágiri	10	10	1,249	978	..	90	45	56	64	803	1,297	462	197	67	31	13	1,405	1,720	3,125	2·86	3·11	3·06	0·23	11
12	Colába	8	8	965	863	..	18	29	32	77	544	204	165	31	..	..	24	564	560	1,124	3·11	3·25	3·21	0·93	12
13	Bombay City	1	1	1	1	1	61	111	185	337	704	495	337	162	42	21	54	1,587	923	2,510	3·97	3·36	3·89	0·46	13
14	Tanna	14	14	2,129	1,922	..	..	..	101	730	680	726	673	159	122	46	100	1,755	1,582	3,337	3·99	3·87	3·94	1·72	14
	Guzerat Division.																								
15	Surat	10	9	360	51	..	..	1	1	9	100	168	327	142	140	59	31	460	518	978	1·51	1·71	1·61	0·86	15
16	Broach	8	6	415	22	..	..	..	..	..	..	88	76	66	41	30	1	156	146	302	0·85	0·87	0·86	0·99	16
17	Kaira	11	8	591	26	..	..	..	..	..	..	..	..	..	37	108	60	114	91	205	0·27	0·25	0·26	0·86	17
18	Panch Máhál	7	7	693	24	..	..	1	..	..	4	..	..	..	..	117	54	100	76	176	0·79	0·66	0·73	1·14	18
19	Ahmedabad	12	8	904	32	..	..	..	..	..	..	..	..	..	4	175	106	180	105	285	0·41	0·27	0·34	0·92	19
	Sind Division.																								
20	Kurrachee	14	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0·02	20
21	Hyderabad	14	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	21
22	Thar and Párkar	8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0·62	22
23	Shikárpur	20	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	23
24	Upper Sind Frontier	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	24
	Total for the Presidency.	284	206	..	..	3,734	4,489	6,887	8,114	8,299	8,309	7,642	5,149	1,874	1,110	813	797	31,341	25,908	57,252	3·70	3·36	3·53	1·10	

* Information not obtainable

ANNUAL FORM No. VIII.—DEATHS *registered from* SMALL-POX *in the* DISTRICTS *of the* BOMBAY PRESIDENCY *during each Month of the Year* 1877.

No.	Districts.	Circles of Registration. No. in each District.	Circles of Registration. No. from which Deaths from Small-pox were reported.	Villages. No. in each District.	Villages. No. from which Deaths from Small-pox were reported.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total. Males.	Total. Females.	Total. Total.	No. of Deaths of Children. Under 1 Year.	No. of Deaths of Children. Under 12 Years.	Total Ratio of Deaths per 1,000 of Population. Males.	Total Ratio of Deaths per 1,000 of Population. Females.	Total Ratio of Deaths per 1,000 of Population. Total.	Mean Ratio per 1,000 of previous five years.	No.
	Northern Deccan Division.				*																						
1	Khandesh	26	26	..	..	1,703	1,233	1,162	1,035	396	133	81	9	9	1	10	2	2,879	2,895	5,774	..	..	5·43	5·82	5·61	1·02	1
2	Násik	16	15	..	..	808	699	859	557	413	103	37	20	14	5	5	1	1,645	1,786	3,431	..	..	4·67	5·33	4·70	0·94	2
3	Ahmednagar	14	14	..	..	359	358	562	413	153	39	16	14	2	29	..	3	984	994	1,978	..	..	2·49	2·83	2·56	0·79	3
4	Poona	11	11	..	..	196	228	340	213	190	60	27	9	6	3	4	6	664	648	1,312	..	..	1·16	1·47	1·45	0·82	4
5	Sholápur	10	10	..	..	109	184	279	174	132	86	30	14	43	6	15	8	585	495	1,080	..	..	1·59	1·42	1·50	0·93	5
	Southern Deccan Division.																										
6	Satara	15	15	..	..	75	129	176	202	205	83	29	15	10	13	6	7	494	456	950	..	..	0·92	1·02	0·89	0·64	6
7	Belgaum	..	11	..	..	77	107	132	186	175	147	98	67	40	21	28	34	583	529	1,112	..	..	1·22	1·15	1·18	1·15	7
8	Dharwar	11	18	..	..	252	399	482	434	362	237	175	103	87	47	44	20	1,319	1,323	2,642	..	..	2·61	2·76	2·67	1·08	8
9	Kaládgi	10	9	..	..	55	83	140	173	109	89	56	44	16	6	35	2	382	419	801	..	..	0·91	1·03	0·98	1·23	9
	Konkan Division.																										
10	Kanara	13	13	972	132	12	24	37	46	82	106	54	40	23	12	8	29	256	217	473	..	..	1·21	1·13	1·19	1·06	10
11	Rátnagiri	10	10	1,249	342	181	172	227	239	143	112	68	50	24	15	6	2	612	627	1,239	..	..	1·25	1·19	1·22	0·51	11
12	Colába	8	8	965	208	36	24	73	53	58	34	18	18	11	5	2	1	166	167	333	..	..	0·93	0·97	0·95	0·29	12
13	Bombay City	1	1	1	1	57	115	230	256	109	64	32	18	18	9	16	29	474	479	953	..	..	1·19	1·92	1·47	1·80	13
14	Tanna	14	13	2,129	463	91	130	218	211	277	134	98	54	34	29	14	11	606	695	1,311	..	..	1·38	1·70	1·53	1·85	14
	Guzerat Division.																										
15	Surat	10	10	860	340	337	421	630	456	223	78	25	16	2	2	2	1	1,151	1,042	2,193	..	..	3·78	3·44	3·61	0·47	15
16	Broach	8	8	415	156	22	132	261	341	191	53	24	9	1	2	6	14	523	513	1,036	..	..	2·86	3·06	2·96	0·19	16
17	Kaira	11	8	591	37	1	..	..	..	12	24	14	4	2	2	13	53	73	52	125	..	..	0·17	0·14	0·16	0·79	17
18	Panch Máhals	7	6	693	14	2	1	7	2	6	7	4	..	..	..	2	10	22	19	41	..	..	0·17	0·16	0·17	0·14	18
19	Ahmedabad	12	10	904	36	3	..	33	13	36	16	5	5	1	10	15	7	73	71	144	..	..	0·17	0·18	0·17	0·31	19
	Sind Division.																										
20	Kurrachee	14	13	..	..	40	22	35	17	16	12	7	1	1	..	..	..	92	59	151	..	..	0·38	0·32	0·35	0·16	20
21	Hyderabad	14	12	..	..	49	66	65	34	32	9	13	4	2	..	4	8	158	128	286	..	..	0·10	0·36	0·40	0·55	21
22	Thar and Párkar ..	8	5	..	..	..	..	1	..	3	3	..	..	1	..	..	..	4	4	8	..	..	0·04	0·05	0·04	0·07	22
23	Shikárpu	20	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0·03	23
24	Upper Sind Frontier ..	4	2	..	..	..	..	..	2	2	1	..	..	..	..	..	1	3	3	6	..	..	0·06	0·08	0·07	0·01	24
	Total for the Presidency.	284	248	..	..	4,465	4,437	5,949	5,097	3,325	1,630	911	514	347	217	228	249	13,748	13,621	27,369	..	..	1·63	1·76	1·69	0·98	

ANNUAL FORM No. IX.—DEATHS *registered from* FEVERS *in the* DISTRICT *of the* BOMBAY PRESIDENCY *during each Month of the Year* 1877.

No.	Districts.	Circles of Registration. No. in each District.	Circles of Registration. No. from which Deaths from Fevers were reported.	Villages. No. in each District.	Villages. No. from which Deaths from Fevers were reported.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total. Male.	Total. Female.	Total. Total.	Ratio of Deaths per 1,000 of Population. Male.	Ratio of Deaths per 1,000 of Population. Female.	Ratio of Deaths per 1,000 of Population. Total.	Mean Ratio per 1,000 for previous five years.	*
	Northern Deccan Division.				*																				
1	Khandesh	26	26	..	..	1,092	1,058	1,200	1,245	1,288	980	1,015	1,619	1,385	1,143	1,249	1,112	8,006	6,380	14,386	15·10	12·82	13·99	15·71	1
2	Násik	15	15	..	..	1,093	824	1,023	1,171	1,008	882	1,192	1,500	1,495	1,489	1,622	1,600	7,914	6,985	14,899	22·45	20·86	21·68	14·37	2
3	Ahmednagar	14	14	..	..	964	845	1,196	1,162	1,389	1,296	1,763	2,171	2,552	2,289	2,171	1,626	10,842	8,582	19,424	27·42	22·96	25·10	13·78	3
4	Poona	11	11	..	..	1,083	967	1,421	1,612	1,575	1,497	1,766	1,986	1,798	1,903	2,100	2,015	10,770	8,983	19,753	23·07	20·09	21·77	15·47	4
5	Sholápur	10	10	..	..	641	602	698	841	1,017	1,051	1,260	1,792	2,194	2,235	3,033	1,577	9,469	7,472	16,941	25·64	21·42	23·56	11·62	5
	Southern Deccan Division.																								
6	Satara	15	15	..	..	1,372	1,157	1,615	2,062	2,307	2,281	3,486	4,185	3,602	3,398	3,403	2,687	17,263	14,192	31,455	22·38	27·21	29·74	14·58	6
7	Belgaum	11	11	..	..	1,228	1,152	1,314	1,639	1,988	2,327	2,772	3,255	2,603	2,036	2,353	2,600	14,356	10,911	25,267	29·08	23·73	26·91	10·79	7
8	Dharwar	18	18	..	..	1,510	1,491	1,748	1,782	2,251	2,823	4,060	5,128	5,226	4,152	4,560	4,884	22,915	17,000	39,915	47·28	35·47	40·40	12·—	8
9	Kaládgi	10	9	..	..	948	992	1,258	1,850	2,853	3,111	3,776	3,529	4,546	5,482	7,743	5,160	23,472	17,776	41,248	56·20	44·62	50·55	10·15	9
	Konkan Division.																								
10	Kanara	13	13	972	972	737	529	836	604	540	624	793	1,117	1,217	1,209	1,227	1,229	5,536	5,126	10,662	26·82	26·70	26·76	14·18	10
11	Ratnágiri	10	10	1,249	1,189	617	550	613	698	618	601	898	877	775	627	704	868	4,501	3,945	8,446	16·00	7·47	8·56	4·8—	11
12	Colába	8	8	915	965	278	211	341	258	218	228	305	346	273	262	310	251	1,756	1,525	3,281	9·86	8·85	9·36	8·5—	12
13	Bombay City ..	1	1	1	1	684	752	1,261	1,516	1,611	1,323	975	1,002	949	926	845	944	6,895	5,953	12,788	17·05	24·93	19·84	1·2—	13
14	Tanna	14	14	2,129	2,129	1,235	1,148	1,148	1,146	1,101	953	1,065	1,193	1,324	1,271	1,771	2,391	8,456	7,291	15,746	19·25	17·80	18·52	21·92	14
	Guzerat Division.																								
15	Surat	10	10	860	690	889	775	1,016	879	727	638	655	700	678	611	701	596	4,662	4,262	8,924	15·42	14·06	14·60	19·57	15
16	Broach	8	8	415	385	284	391	531	515	527	368	402	315	370	445	573	472	2,842	2,411	5,253	15·83	14·07	14·96	18·—	16
17	Kaira	11	11	591	583	924	882	1,108	1,144	1,019	841	956	892	871	1,055	1,235	1,072	6,647	5,265	11,912	15·86	13·15	15·02	17·—	17
18	Panch Máhals ..	7	7	693	387	373	229	337	278	193	213	288	217	218	183	234	273	1,694	1,343	3,037	14·41	11·42	12·91	12·—?	18
19	Ahmedadad	12	12	904	662	999	869	1,226	1,247	1,067	750	730	698	826	1,019	1,196	1,128	6,352	5,423	11,775	11·42	10·37	11·—	17·—	19
	Sind Division.																								
20	Kurrachee	14	14	..	..	659	610	571	444	400	305	275	276	272	455	488	595	3,183	2,167	5,350	13·27	11·82	12·70	11·30	20
21	Hyderabad	14	14	..	..	888	837	903	657	539	377	310	376	422	493	597	729	4,206	2,922	7,128	10·57	8·03	9·37	9·05	21
22	Thar and Párkar ..	8	8	..	..	172	231	236	252	205	123	110	93	147	134	170	372	1,251	974	2,225	12·11	11·27	12·02	8·88	22
23	Shikárpur	20	20	..	..	762	562	584	526	483	402	427	410	444	598	610	756	3,765	2,691	6,456	8·72	6·61	7·68	8·24	23
24	Upper Sind Frontier ..	4	4	..	..	79	72	74	52	62	46	43	43	34	38	42	51	322	210	532	6·11	7·03	7·72	7·5—	24
	Total for the Presidency	284	283	..	..	19,607	17,686	22,258	23,580	24,986	24,046	29,522	33,720	34,221	33,753	38,927	34,745	186,975	149,890	336,865	22·11	19·42	20·79	12·—	

* Information not obtainable.

ANNUAL FORM No. X.—DEATHS *registered from* BOWEL COMPLAINTS *in the* DISTRICTS *of the* BOMBAY PRESIDENCY *during each Month of the Year* 1877.

1	2	3		4		5												6			7			8	9
	DISTRICTS.	CIRCLES OF REGISTRATION.		VILLAGES.														TOTAL.			RATIO OF DEATHS PER 1,000 OF POPULATION.			Mean Ratio per 1,000 for previous five years.	No.
		No. in each District.	No. from which Deaths from Bowel Complaints were reported.	No. in each District.	No. from which Deaths from Bowel Complaints were reported.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Male.	Female.	Total.	Male.	Female.	Total.		
	Northern Deccan Division.				*																				
1	Khandesh	26	25	..	..	218	176	208	208	344	213	272	409	311	188	220	210	1,735	1,302	3,037	3·27	2·61	2·96	2·82	1
2	Násik	15	15	..	..	131	115	125	127	151	156	165	258	202	131	106	97	1,454	710	1,764	2·99	2·12	2·71	1·98	2
3	Ahmednagar	14	14	..	..	136	127	157	156	218	231	270	351	499	355	223	161	1,702	1182	2,884	4·30	3·12	3·73	2·64	3
4	Poona	11	11	..	..	172	103	137	151	182	199	257	234	293	247	185	110	1,324	946	2,270	2·84	2·15	2·50	1·98	4
5	Sholápur	10	10	..	..	129	205	129	177	207	393	563	914	1,085	637	462	115	3,067	1,950	5,016	8·31	5·59	6·99	2·13	5
	Southern Deccan Division.							*																	
6	Satara	15	15	..	..	157	130	232	386	468	807	1,260	1,476	1,193	895	517	295	4,626	3,170	7,796	8·58	6·08	7·35	2·39	6
7	Belgaum	11	11	..	..	288	296	367	466	479	514	753	818	669	474	316	252	3,299	2,333	5,632	6·89	5·07	6·00	2·38	7
8	Dharwar	18	18	..	..	517	611	615	595	754	980	1,425	1,958	2,039	1,390	793	562	7,094	5,136	12,230	14·02	10·66	12·38	4·91	8
9	Kaládgi	10	9	..	..	112	137	187	252	313	484	545	869	1,213	1,242	505	244	3,626	2,576	6,102	8·44	6·47	7·48	1·33	9
	Konkan Division.																								
10	Kanara	13	13	972	379	138	105	138	117	123	127	214	401	460	247	166	119	1,380	965	2,345	6·68	5·03	5·94	2·58	10
11	Ratnágiri	10	10	1,249	364	135	122	136	122	139	188	266	263	219	165	137	122	1,196	813	2,009	2·43	1·54	1·97	1·23	11
12	Colába	8	8	965	122	32	13	47	27	29	23	46	33	21	10	21	10	165	147	312	0·93	0·85	0·89	0·36	12
13	Bombay City	1	1	1	1	247	231	279	284	321	262	280	480	535	412	283	231	1,998	1,547	3,545	5·00	6·32	5·50	2 26	13
14	Tanna	14	14	2,129	568	27	20	59	25	35	38	49	90	85	32	16	26	305	197	502	0·69	0·48	0·59	0·64	14
	Guzerat Division.																								
15	Surat	10	10	860	373	87	112	137	123	137	106	108	124	98	92	103	69	743	543	1,286	2·44	1·46	2·12	1·74	15
16	Broach	8	8	415	99	16	37	48	24	42	51	35	32	33	44	52	23	245	192	437	1·34	1·14	1·25	0·86	16
17	Kaira	11	10	591	277	138	94	162	170	167	138	179	155	150	172	151	134	1,036	774	1,810	2·47	2·13	2·31	2·57	17
18	Panch Mahális	7	7	693	48	10	1	8	16	10	16	8	9	8	5	13	17	59	62	121	0·47	0·54	0·50	0·50	18
19	Ahmedabád	12	12	904	203	49	50	76	55	65	73	90	65	52	45	67	84	439	332	771	1·00	0·86	0·93	1·18	19
	Sind Division.																								
20	Kurrachee	14	12	..	..	8	4	2	1	1	1	4	3	3	7	6	6	19	27	46	0·08	0·15	0·11	0·19	20
21	Hyderabad	14	7	..	..	8	4	5	4	10	6	8	7	3	9	8	3	40	35	75	0·10	0·11	0·10	0·10	21
22	Thar and Párkár ..	8	4	..	..	..	1	1	11	9	2	4	5	..	4	6	8	32	19	51	0·31	0·25	0·24	0·33	22
23	Shikárpur	20	19	..	..	27	20	15	29	17	8	8	11	15	21	16	16	141	62	203	0·33	0·18	0·26	0·19	23
24	Upper Sind Frontier ..	4	4	..	..	5	3	..	1	..	1	..	1	..	1	1	..	9	4	13	0·18	0·10	0·14	0·21	24
	Total for the Presidency.	284	277	..	..	2,777	2,717	3,270	3,527	4,201	5,012	6,799	8,666	9,176	6,825	4,373	2,914	35,233	25,024	60,257	4·17	3·24	3·72	1·76	

* Information not obtainable.

A.—VACCINE DEPARTMENT.

Statement No. I. showing particulars of Vaccination in the Bombay Presidency during the year 1877-78.

Number.	Circles and Districts.	Population of Districts according to Census of 1872.	Average population per square mile.	Average number of vaccinators employed throughout the season.	Total number of Persons vaccinated.			Average number of Persons vaccinated by each vaccinator.	Primary Vaccination.				Re-vaccination.		Percentage of successful cases.		Persons successfully vaccinated per 1,000 of population.	Average annual number of persons successfully vaccinated during previous five years.		Average annual number of deaths from small-pox during previous five years.	
									Total.	Successful.			Total.	Successful.	Primary.	Re-vaccination.		No.	Ratio per 1,000.	No.	Ratio per 1,000.
										Under 1 year.	Over 1 and under 6 years.	Total of all ages.									
1	2	3	4	5	6			7	8	9	10	11	12	13	14	15	16	17	18	19	20
	The Northern Deccan Registration District.				Males.	Females.	Total.														
1	Khandesh Collectorate .. .. — Dhúlia Town	12,489	1248·90	1	384	340	724	724	724	631	77	724	..	..	100	..	57·97	841	67·34	11	0·88
2	Párola Town	12,235	...	..	16	21	37	..	37	25	6	33	..	..	89·19	..	2·69	..	..	..	..
3	Nandurbár Town	7,205	554·23	..	..	..	*Vide* Statement No. III.											26	3·61	4	0·56
4	Chopra Local Fund	13,699	595·61	..	71	71	142	..	142	117	24	141	..	..	99·29	..	10·29	30	2·19	19	1·39
5	Nusseerabad Local Fund	9,941	584·76	..	14	39	53	..	53	42	3	46	..	..	98·75	..	4·62	82	8·25	11	1·11
6	In the 22 Rural Circles Local Fund ..	973,073	96·34	17	P. 12,779 R. 114	12,255 37	25,034 151	1,481	25,244	13,317	10,038	24,151	151	141	96·47	93·37	24·23	25,850	26·56	1,539	1·56
	Total ..	1,028,642	101·22	18	P. 13,264 R. 114	12,726 37	25,990 151	1,452	26,200	14,132	10,148	25,095	151	141	96·55	93·37	24·53	26,831	26·08	1,554	1·54
7	Nasik Collectorate . — Yeola Town Local Fund	17,461	8730·50	..	110	128	238	..	241	121	99	220	..	..	92·43	..	12·59	80	1·71	27	1·54
8	Násik do. do.	22,436	11218·0	1	P. 313 R. 98	318 72	631 170	801	631	436	130	580	170	84	91·92	49·41	29·59	690	30·75	53	2·36
9	Deolálí Cantonment Local Fund ..	894	..	..	48	34	82	..	82	72	7	79	..	..	96·34	..	88·37	19	21·25	..	..
10	Málegaon Cantonment Local Fund ..	4,240	4240	..	57	40	97	..	104	76	6	82	..	..	84·53	..	19·34	27	6·36	9	2·12
11	In the 11 Rural Circles do. ..	642,322	89·82	11	P. 5,892 R. 58	5,753 29	11,645 87	1,067	11,749	7,617	2,996	10,954	87	39	94·06	44·82	17·11	14,766	22·98	813	1·27
	Total ..	687,358	96·05	12	P. 6,420 R. 156	6,273 101	12,693 257	1,079	12,807	8,322	3,238	11,915	257	123	98·87	47·86	17·51	15,532	22·59	902	1·31
12	Ahmednagar Collectorate .. .. — Sangamner Town	9,978	623·62	..	..	..	*Vide* Statement No. III.													23	2·31
13	Ahmednagar Town	32,841	4105·12	1	P. 561	507	1,068	1,169	1,068	739	250	1,028	21	12	96·25	57·14	31·66	1,319	40·16	45	1·37
14	Do. Cantonment	3,983	995·75	1	R. 20 41	1 39	21 80		80	54	20	74	..	..	92·50	..	18·57	31	7·78	1	0·25
15	In the 11 Rural Circles Local Funds ..	727,136	109 86	11	P. 7,831 R 169	7,412 87	15,243 256	1,409	15,289	9,365	5,178	14,868	256	117	97·53	45·70	20·61	20,281	27·88	571	0·78
	Total ..	773,938	116·43	12	P. 8,433 R. 189	7,958 88	16,391 277	1,389	16,437	10,158	5,448	15,970	277	129	97 43	46·57	20·80	21,631	27·95	640	0·82

Number.	Circles and Districts.	Population of Districts according to Census of 1872.	Average population per square mile.	Average number of vaccinators employed throughout the season.	Total number of Persons vaccinated.			Average number of Persons vaccinated by each vaccinator.	Primary Vaccination.				Re-vaccination.		Percentage of Successful cases.		Persons successfully vaccinated per 1,000 of population.	Average annual number of persons successfully vaccinated during previous five years.		Average annual number of deaths from small-pox during previous five years	
									Total.	Successful.			Total.	Successful.	Primary.	Re-vaccination.		No.	Ratio per 1,000.	No.	Ratio per 1,000.
										Under 1 year.	Over 1 and under 6 years.	Total of all ages.									
1	2	3	4	5	6			7	8	9	10	11	12	13	14	15	16	17	18	19	20
					Males.	Females.	Total.														
16	Junnar Town Local Funds	10,298	332·66	..	Vide State ment		No. III	..	..	..	..	..	..	..	..	..	..	21	2·03	15	1·45
17	Khed do	6,446	..	1	320	299	619	619	619	241	377	618	..	..	99·82	..	95·87	533	82·68	..	..
18	Poona Collectorate.. Poona City	90,436	22609·0	2	P. 1,476	1,092	2,568	1,301	2,569	1,590	788	2,374	34	24	92·49	70·38	26·51	1,849	20·44	108	1·19
					R. 28	6	34														
19	Poona and Kirkee Cantonments ..	28,450	7112·50	1	P. 477	368	845	873	862	670	134	804	28	5	95·14	17·83	28·43	748	26·29	31	1·09
					R. 18	10	28														
20	In the 8 Rural Circles Local Funds ..	771,605	152·58	10	P. 6,215	5,867	12,082	1,227	12,113	4,914	6,735	11,862	192	186	98·17	96·87	15·61	14,003	18·15	518	0·67
					R. 183	9	192														
	Total ..	907,235	177·92	14	P. 8,488	7,626	16,114	1,169	16,163	7,415	8,034	15,658	254	215	97·17	84·16	17·49	17,154	18·89	672	0·74
					R. 229	25	254														
21	Sholápur Town	53,403	2225·12	1	P. 995	791	1,786	1,827	1,786	761	759	1,771	51	28	99·16	54·90	33·68	1,436	26·89	30	0·56
					R. 33	18	51														
22	Sholápur Collectorate. Bársi do.	18,560	640·00	1	P. 489	506	995	996	998	376	518	897	1	1	90·15	100	48·38	1,040	56·03	11	0·59
					R. ..	1	1														
23	Pandharpur Town..	16,275	3255.00	1	P. 448	486	934	948	934	597	282	901	14	9	96·46	64·28	55·91	1,328	81·59	8	0·49
					R. 11	3	14														
24	In the 7 Rural Circles Local Funds ..	629,796	141·49	9	P. 5,181	4,913	10,094	1,140	10,180	4,730	4,726	9,809	164	130	97·08	79·26	15·78	12,577	19·97	352	0·56
					R. 96	68	164														
	Total ..	718,034	159·25	12	P. 7,113	6,696	13,809	1,170	13,898	6,464	6,285	13,378	230	168	96·87	73·04	18·86	16,381	22·81	401	0.56
					R. 140	90	230														
25	Dang Territory	39,111	10·19	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
26	Native States .. Peint State	47,033	48·99	1	655	699	1,354	1,354	1,359	59	675	1,262	..	..	93·21	..	26·83	1,080	22·97	..	..
27	Akalkot...	81,068	162·79	1	P. 835	798	1,633	1,644	1,661	836	609	1,490	11	5	91·24	45·45	18·44	1,636	20 18	..	..
					R. 8	3	11														
28	Modnimb	13,773	154·30	..	P. 145	151	296	..	303	177	107	287	9	2	96·95	28·57	21·04	94	68·44	..	..
					R. 2	5	7														
	Totals by Establishments in Northern Deccan Registration District .. Cantonment	28,450	7112·50	1	P. 477	368	845	873	862	670	134	804	28	5	95·14	17·83	28·43	748	26·29	32	1·13
					R. 18	10	28														
	Municipal	269,104	3129·12	9	P. 5,043	4,399	9,442	1,081	9,446	5,450	3,207	9,000	291	158	95·31	54·29	34·03	9,067	33·69	266	0·98
					R. 190	101	291														
	Local Funds	3,817,648	114·01	58	P. 38,198	36,512	74,710	1,303	75,197	40,371	29,812	72,212	850	613	96·65	72·11	19·08	87,715	22·97	3,901	1·02
					R. 620	230	850														
	Native States	180,985	33·58	2	P. 1,635	1,648	3,283	1,650	3,323	1,072	1,391	3,039	20	7	92·57	35·00	16·83	2,810	15·52	..	..
					R. 10	8	18														
	Grand Total ..	4,296,187	110·27	70	P. 45,353	42,927	88,280	1,278	88,828	47,563	34,544	85,055	1,189	783	96·35	65·96	19·98	100,340	23·35	4,199	0·98
					R. 838	349	1,187														

The Southern Deccan Registration District.

29	Satara Collectorate.	Satara Town	24,484	8161·33	1	P	440	397	837	884	837	532	268	819	47	44	97·85	93·61	35·24	1,201	49·04	16	0·65
30		Karád do.	11,410	7606·66	..	R	46	1	47											471	41·28	3	0·26
31		Wái do.	11,062	5531·00	...	Vide Statement No. III. Do.														..		8	0·72
32		In the 12 Rural Circles, Local Funds ..	10,14,046	211·32	13	P	15,576	14,602	30,178	2,350	30,339	12,589	15,222	28,601	382	247	94·77	64·66	28·44	27,041	36·67	529	0·52
						R	238	140	378														
		Total ..	10,61,002	220·86	14	P	16,016	14,999	31,015	2,246	31,176	13,121	15,490	29,420	429	291	94·35	67·83	28·00	28,713	27·06	556	0·52
						R	284	141	425														
33	Belgaum Collectorate	Gokák Town	12,612	..						Vide Statement No. III. Do.										351	27·83	9	0·71
34		Athni do.	11,588	..																..	..	14	1·21
35		Belgaum do.	26,947	..	1	P	616	431	1,047	1,076	1,050	584	340	988	29	24	94·36	82·76	31·35	819	30·39	66	2·45
36		Do. Cantonment	5,330	...		R	26	3	29											..	..	2	0·38
37		In the 7 Rural Circles, Local Funds ..	8,82,273	..	11	P	7,486	6,795	14,281	1,321	14,321	5,754	7,049	13,408	253	217	93·88	85·77	15·44	15,250	17·29	765	0·87
						R	165	88	253														
		Total ..	9,38,750	204·43	12	P	8,102	7,226	15,328	1,301	15,371	6,338	7,389	14,396	282	241	93·91	85·46	15·59	16,420	17·49	856	0·91
						R	191	91	282														
38	Dharwar Collectorate	Dharwar Town	27,136	..	1		1,122	532	1,654	1,654	1,654	565	583	1,623	..	..	98·12	..	59·81	645	23·76	30	1·11
39		Hubli do.	37,961	..	1	P	620	550	1,170	1,227	1,174	770	346	1,121	57	55	95·81	96·49	30·98	1,210	31·87	55	1·46
40		Gadag-Betigeri Town	19,035	..	1	R	52	5	57											..	..	30	2·58
41		Ránibennur do.	11,623	..	1		437	432	869	869	869	542	209	752	..	..	86·53	..	39·56	870	45·61	12	0·63
42		In the 14 Rural Circles, Local Funds ..	8,92,282	...	11	P	7,263	7,111	14,374	1,316	14,502	4,971	7,162	13,088	103	52	91·05	50·48	14·53	15,040	16·86	952	1·61
						R	88	14	102														
		Total ..	9,88,037	216·43	14	P	9,442	8,625	18,067	1,302	18,199	6,848	8,300	16,584	160	107	91·23	66·87	16·89	17,765	17·98	1,079	1·09
						R	140	19	159														
43	Kaládgi Collectorate	Bágalkot Town	14,002	.	1	P	536	484	1,020	1,129	1,021	572	263	844	109	65	82·74	59·63	64·01	908	64·84	..	..
44		Bijápur do.	12,938	..	1	R	68	41	109														
45		Guledgudd do.	10,674	..	1	P	696	679	1,375	1,407	1,376	472	481	1,033	32	5	75·12	15·62	80·23	978	75·59	..	..
46		Ilkal do.	10,107	..	1	R	16	16	32														
47		Kaládgi do.	6,592	..	1	P	564	499	1,063	1,082	1,063	287	500	917	19	5	86·26	26·31	86·38	384	36·97	..	..
48		Do. Cantonment				R	10	9	19														
49		In the 8 Rural Circles, Local Funds ..	761,724	..	8	P	232	230	462	523	462	216	201	429	61	51	92·86	83·61	47·49	204	20·18	..	..
						R	46	15	61											122	18·35	1	..
						P	379	253	632	647	635	23	175	471	15	..	74·52	..	71·45	..	..	..	..
						R	15	..	15														
						P	5,918	5,523	11,441	1,464	11,469	5,136	4,685	10,179	275	180	88·07	65·45	13·59	13,370	17·55	462	0·61
						R	220	55	275														
		Total ..	8,16,037	143·29	13	P	8,325	7,668	15,993	1,270	16,026	6,706	6,305	13,873	511	306	86·74	59·88	17·37	15,966	19·56	463	0·56
						R	375	136	511														
50	Kolhápur States		8,02,691	288·95	11	P	6,288	6,076	12,364	1,134	12,398	5,880	5,492	11,670	111	99	94·38	89·18	14·66	17,189	21·41	..	..
						R	74	37	111														

Number.	Circles and Districts.		Population of Districts according to Census of 1872.	Average population per square mile.	Average number of vaccinators employed throughout the season.	Total number of Persons vaccinated.			Average number of persons vaccinated by each vaccinator.	Primary Vaccination.				Re-vaccination.		Percentage of Successful Cases.		Persons successfully vaccinated per 1,000 of population.	Average annual number of persons successfully vaccinated during previous five years.		Average annual number of deaths from small-pox during previous five years.	
										Total.	Successful.			Total.	Successful.	Primary.	Re-vaccination.		No.	Ratio per 1,000.	No.	Ratio per 1,000.
											Under 1 year.	Over 1 and under 6 years.	Total of all ages.									
1	2		3	4	5	6			7	8	9	10	11	12	13	14	15	16	17	18	19	20
						Males.	Females	Total.														
51	Southern Maratha Jahgirs	Sángli	2,23,663	249·62	4	P. 1289 R. 6	1,351 3	2,640 9	662	2,642	1,359	900	2,304	9	7	87·27	77·78	10·33	2,622	11·72	..	..
52		Jámkhandi	1,02,346	208·02	2	P. 880 R. 8	911 1	1,791 9	900	1,799	947	663	1,650	9	8	92·12	88·89	16·19	1,780	17·39	..	..
53		Miraj (Senior)	68,428	272·62	2	455	440	895	447	913	441	321	788	..	..	88·04	..	11·66	1,227	17·93	..	..
54		Miraj (Junior)	35,601	171·99	1	240	217	457	457	457	216	197	457	..	..	100	..	12·84	578	16·23	..	..
55		Kurandwád (Elder)	39,420	216·59	1	P. 542 R. 2	575 3	1,117 5	1,122	1,119	284	769	1,074	5	1	96·15	20·00	27·27	938	23·79	..	..
56		Kurrandwad (Younger)	30,251	265·38	1	P. 154 R. ..	132 2	286 2	288	289	163	93	261	2	1	91·27	50·00	8·66	550	18·18	..	..
57		Mudhol	58,921	162·76	1	P. 512 R. 53	431 91	943 144	1,087	943	478	422	943	144	144	100	100	18·45	1,020	17·31	..	..
58		Rámdurg	38,031	271·65	1	P. 142 R. 17	142 10	284 27	311	284	99	156	266	27	23	93·66	85·18	7·59	640	18·14	..	..
		Total	5,96,661	225·58	13	P. 4214 R. 86	4,199 110	8,413 196	662	8,446	3,987	3,521	7,743	196	184	92·03	93·87	13·29	9,361	15·69	..	..
59	Satara Jahgirs	Pant Pratinidhi	68,335	320·82	1	259	230	489	489	500	111	303	428	..	..	87·52	..	6·26	1,011	14·79	..	..
60		Pant Sacheo	136,075	91·26	2	P. 1313 R. 22	1,251 2	2,564 24	1,294	2,564	1,091	1,358	2,553	24	24	99·57	100	18·93	2,559	18·80	..	..
61		Phaltan	59,124	148·93	1	P. 256 R. 1	200 1	456 2	458	487	184	156	373	2	1	81·79	50·00	6·32	1,117	18·88	..	..
62		Jath	70,665	91·77	1	P. 312 R. 83	267 39	579 122	701	579	274	150	447	122	103	77·20	84·43	7·78	1,245	17·61	..	..
		Total	3,34,199	116·40	5	P. 2140 R. 106	1948 42	4,088 148	847	4,130	1,660	1,967	3,801	148	128	92·97	86·48	11·75	5,932	17·75	..	..
	Under the Dharwar Agency.																					
63	Savánur State		17,288	247·04	1	P. 326 R. 13	243 14	569 27	596	570	189	315	518	27	21	91·04	77·78	31·17	514	29·73	..	..
	Totals by Establishments in Southern Deccan Registration District	Municipal	1,95,206	65068·67	10	P. 5642 R. 279	4,487 90	10,129 369	1,050	10,141	4,563	3,366	8,997	369	249	88·82	67·48	47·36	8,162	41·81	181	0·92
		Local Funds	36,08,620	183·61	43	P. 36243 R. 711	34,031 297	70,274 1,008	1,658	70,631	28,450	34,118	65,276	1,013	696	92·88	68.70	18·06	70,701	19·59	2,773	0·76
		Native States	17,50,839	209·33	30	P. 12969 R. 279	12,466 203	25,434 482	864	25,539	11,716	11,295	23,782	482	432	93·38	89·62	13·79	32,996	18·84	..	..
		Grand Total	55,54,665	198·23	83	P. 54853 R. 1269	50,984 590	1,05,837 1,859	1,298	1,06,311	44,729	48,779	93,005	1,864	1,377	92·59	73·87	17·89	1,11,859	20·14	2,954	0·53

	THE KONKAN REGISTRATION DISTRICT.																								
64	Kanara Collectorate	Karwar Town	13,263	..	..	..	..	*Vide.*—	Statement	No. III.									13	0·98	32	2·41
65		Coompta do.	10,932	..	..	..	..		Ditto.										..	..	5	0·46
66		In the 11 Rural Circles, Local Funds	3,74,211	..	11	P	6,422	5,867	12,289	1,168	12,363	1,426	7,172	11,409	558	333	92·84	59·68	31·38	11,703	31·36	287	0·76
						R	352	206	558														
		Total	3,98,406	94·07	11	R	6,422	5,867	12,289	1,168	12,363	1,426	7,172	11,409	558	333	92·84	59·68	29·48	11,716	29·47	324	0·81
						R	352	206	558														
67	Ratnágiri Collectorate,	Vingorla Town	14,996	..	..	..	..	*Vide.*—	Statement	No. III.									..	..	3	0·20
68		Ratnágiri do.	10,614	..															..	..	10	0·94
69		In the 8 Rural Circles, Local Funds	9,93,526	..	13	P	13,558	12,928	26,486	2,319	26,624	9,312	15,298	25,931	3,662	2,604	97·90	71·11	28·41	29,966	30·16	639	0·64
						R	2,147	1,515	3,662														
		Total	10,19,136	225·87	13	P	13,558	12,928	26,486	2,319	26,624	9,312	15,298	25,931	3,662	2,604	97·90	71·11	27·99	29,966	29·40	652	0·64
						R	2,147	1,515	3,662														
70	Kolába Collectorate	Alibág Town	5,473	..	..	..	..	*Vide.*—	Statement	No. III.									..	..	4	0·73
71		Mahád do.	6,631	6631	..				Ditto.										..	..	6	0·91
72		In the 6 Rural Circles, Local Funds	3,38,301	225·08	5	P	3,920	3,689	7,609	1,536	7,686	5,099	2,085	7,258	72	36	95·39	50·00	21·56	8,153	24·09	186	0·54
						R	46	26	72														
		Total	3,50,405	232·98	5	P	3,920	3,689	7,609	1,536	7,686	5,099	2,085	7,258	72	36	95·39	50·00	20·81	8,153	23·27	196	0·56
						R	46	26	72														
73	Tanna Collectorate	Kalyan Town	12,804	4268·00	..	..	..	*Vide.*—	Statement	No. III.									..	..	15	1·17
74		Tanna do.	14,299	3574·75	1	P	640	261	901	1,573	902	302	130	726	672	415	80·58	61·76	79·79	490	34·27	17	1·19
						R	628	44	672														
75		Panwel do.	10,836	1806·00		P	223	228	451		451	386	58	450	6	3	99·78	50·00	4·81	463	42·73	10	0·92
						R	5	1	6														
76		Uran do.	8,690	..	1	P	225	214	439	901													
						R	4	1	5		439	352	79	436	5	..	99·32	..	50·17	361	41·54	..	..
77		In the 11 Rural Circles, Local Funds	8,00,795	198·26	11	P	7,237	6,926	14,163	1,298	14,246	6,562	6,419	13,433	116	23	94·84	19·82	16·80	15,056	18·80	649	0·81
						R	78	38	116														
		Total	8,47,424	209·13	13	P	8,325	7,629	15,954	1,289	16,038	7,602	6,686	15,045	799	441	94·30	55·19	18·27	16,370	19·31	691	0·82
						R	715	84	799														
78	Native States	Sáwantwári	1,90,814	212·02	1	P	2,441	2,436	4,877	7,550	4,922	2,218	2,187	4,611	2,673	982	94·55	36·74	29·31	6,493	34·02	..	..
79		Janjira	71,996	479·53	1	R	1,643	1,030	2,673														
						P	502	503	1,005	1,044	1,013	738	220	969	39	39	96·42	100	13·99	2,389	33·17	..	..
80		Jawhár	37,406	70·05	1	R	19	20	39														
							449	423	872		872	309	458	823	..	..	94·38	..	22·01	1,377	36·81	..	..
	Totals by Establishments in Konkan Registration District.	Municipal	33,825	3382·50	2	P	1,088	703	1,791	1,237	1,792	1,040	267	1,612	683	418	90·01	61·20	60·01	1,314	38·84	27	0·79
						R	637	46	683														
		Local Funds	25,81,546	180·61	40	P	31,137	29,410	60,547	1,624	60,919	22,399	30,974	58,031	4,408	2,996	95·85	67·97	23·64	64,878	25·18	1,836	0·71
						R	2,623	1,785	4,408														
		Native States	3,00,216	213·65	3	P	3,392	3,362	6,754	3,155	6,807	3,265	2,860	6,403	2,712	1,021	94·80	37·65	24·69	10,259	34·17	..	..
						R	1,662	1,050	2,712														
		Grand Total	29,15,587	185·61	45	P	35,617	33,475	69,092	1,709	69,518	26,704	34,101	66,046	7,803	4,435	95·59	56·84	24·17	76,451	26·22	1,863	0·65
						R	4,922	2,881	7,803														
	THE PRESIDENCY CIRCLE.																						
81	Bombay City (Municipal)		6,44,405	29,291·13	8	P	6,248	5,495	11,743	1,873	12,175	7,212	2,774	10,219	3,272	1,643	87·02	50·66	18·41	16,310	25·31	1,203	1·86
						R	3,015	228	3,243														

Number.	Circles and Districts.	Population of Districts according to Census of 1872	Average population per square mile.	Average number of vaccinators employed throughout the season.	Total number of persons vaccinated.			Average number of Persons vaccinated by each vaccinator.	Primary Vaccination.				Re-vaccination.		Percentage of Successful cases.		Persons successfully vaccinated per 1,000 of population.	Average actual number of persons successfully vaccinated during previous five years.		Average annual number of deaths from small-pox during previous five years.	
										Successful.											
					Males.	Females.	Total.		Total.	Under 1 year.	Over 1 and under 6 years.	Total of all ages.	Total.	Successful.	Primary.	Re-vaccination.			No.	Ratio per 1,000.	No.	Ratio per 1,000.
1	2	3	4	5	6			7	8	9	10	11	12	13	14	15	16	17	18	19	20
	The Eastern Guzerat Registration District.																				
	Surat Town	1,07,149	35,716·33	1	P 932	860	1,792	2,184	1,796	1,276	386	1,691	392	109	94·15	27·80	16·79	1,988	18·55	163	1·52
	Bulsar do.	11,315	..	..	R 348	44	392													9	0·79
82	Surat Collectorate ..				..	..	*Vide*—	Statement	No. III.	..	..	..	..	..	..	..	..	..	..	..	..
83	In the 8 Rural Circles, Local Funds ..	4,88,623	300·32	8	P 6,584	6,295	12,879	1,658	12,993	7,819	4,249	12,534	389	281	97·32	72·23	26·22	12,996	26·59	414	0·85
84					R 300	86	386														
	Total ..	6,07,087	372·44	9	P 7,516	7,155	14,671	1,717	14,789	9,095	4,635	14,225	781	390	96·18	49·93	24·07	14,984	24·68	586	0·96
					R 648	130	778														
	Broach City	36,932	..	1	P 354	317	671	691	674	455	177	638	20	11	94·65	55·00	17·57	861	23·31	45	1·22
85					R 16	4	20													6	0·40
86	Broach Collectorate.. Jambusar Town	14,924	..	..	..	..	*Vide*—	Statement	No. III.	..	..	..	..	..	..	..	..	..	..	101	0·33
87	In the 6 Rural Circles, Local Funds ..	2,98,466	..	5	P 4,232	3,916	8,148	1,677	8,223	5,291	2,498	7,883	240	136	96·74	56·66	26·86	7,156	23·97		
					R 211	28	239														
	Total ..	3,50,322	257·02	6	P 4,586	4,233	8,819	1,513	8,897	5,746	2,675	8,521	260	147	95·77	56·53	24·74	8,017	22·88	152	0·43
					R 227	32	259														
	Nariád Town	24,551	2,455·10	1	P 675	542	1,217	1,243	1,219	862	308	1,183	26	13	97·04	50·00	48·71	942	38·37	15	0·61
88					R 24	2	26														
	Kaira do. Local Funds	12,681	1,585·12	..	P 224	191	415	..	415	286	104	392	2	..	94·45	..	30·91	83	6·54	4	0·31
89					R 2	..	2													11	0·90
90	Kaira Collectorate .. Borsad do.	12,214	1,221·40	..	..	..	*Vide*—	Statement	No. III.	..	..	..	..	..	..	..	..	..	..	6	0·43
91	Kapadwanj Town	13,982	1,997·42	..	..	..	Ditto.														
92	In the 7 Rural Circles, Local Funds ..	7,19,305	471·36	8	P 10,791	8,828	19,619	2,522	19,666	12,088	6,828	19,123	561	289	97·47	51·52	26·98	17,681	24·05	412	0·57
					R 429	129	558														
	Total ..	7,82,733	501·43	9	P 11,690	9,561	21,251	2,426	21,300	13,236	7,240	20,698	589	302	97·17	51·27	26·82	18,706	23·77	448	0·57
					R 455	131	586														
93	Godhra Town..	10,641	..	..	..	..	*Vide*—	Statement	No. III.	..	..	..	..	..	..	..	..	..	..	3	0·28
94	Dhond do. Local Funds	11,472	..	..	P 219	210	429	..	440	251	160	415	452	289	94·31	63·93	61·36	120	10·45	9	0·78
	Panch Mahals ..				R 245	27	452														
95	In the 5 Rural Circles, Local Funds ..	2,18,630	..	5	P 4,629	4,389	9,018	1,923	9,065	4,130	4,274	8,896	595	417	98·64	70·09	42·59	8,541	39·06	27	0·12
					R 414	181	595														
	Total ..	2,40,743	146·43	5	P 4,448	4,599	9,447	2,099	9,505	4,381	4,434	9,311	1,047	706	97·75	67·43	41·69	8,661	35·97	39	0·16
					R 839	208	1,047														
96	Gogo Town	9,571	..	..	..	..	*Vide*—	Statement	No. III.	..	..	..	..	..	..	..	..	..	..	4	0·42
97	Viramgam Town	19,661	..	1	P 502	495	997	1,010	1,001	765	174	947	13	6	94·60	46·15	48·47	667	33·92	5	0·25
					R 11	2	13														
98	Dholka do.	20,854	..	1	P 423	395	818	834	831	671	95	783	16	8	94·22	50·00	37·93	585	28·09	2	0·08
					R 15	1	16														
99	Ahmedabad Collectorate. Dhanduka do.	9,782	..	1	P 572	504	1,076	1,123	1,084	871	161	1,054	48	27	97·23	56·25	110·57	1,179	120·52	..	..
					R 37	10	47														
100	Ahmedabad City	1,16,873	58,436·50	2	P 2,129	2,112	4,241	2,400	4,247	3,031	1,072	4,150	561	513	97·71	91·44	39·25	4,861	41·59	6	0·05
101	Do. Cantonment	1,883	627·66		R 348	212	560											..	..	..	..
102	In the 7 Rural Circles, Local Funds ..	6,51,013	169·57	9	P 10,020	8,950	18,970	2,203	19,117	12,076	6,177	18,406	856	574	97·02	67·21	29·15	13,753	21·12	254	0·39
					R 659	195	854														
	Total ..	8,29,637	215·83	14	P 13,646	12,456	26,102	1,971	26,280	17,414	7,679	25,340	1,494	1,128	96·42	75·50	31·90	21,045	25·36	271	0·32
					R 1,070	420	1,490														

103	Native States.	Rewa Kánta States	5,05,732	1504·45	11	P	8,062	7,765	15,827	1,444	15,930	4,336	9,241	5,469	61	47	97·10	77·04	30·68	12,341	24·40	..	..
						R	40	20	60														
104		Mahi Kánta States	4,47,056	111·76	5	P	5,598	5,189	10,787	2,169	10,825	3,518	6,614	10,589	59	43	97·81	72·88	23·78	8,468	18·94	..	..
						R	40	19	59														
105		Cambay	83,494	238·55	1	P	1,697	1,452	3,149	3,187	3,179	1,860	1,116	3,097	39	14	97·42	35·89	37·26	2,226	26·65	..	..
						R	28	10	38														
106		Surat Agency. Dharampur	74,592	331·52	1	P	1,621	1,561	3,182	3,189	3,182	513	1,492	3,153	7	6	99·08	85·71	42·35	3,248	43·54	..	..
						R	4	3	7														
107		Bánsda	32,154	98·94	1		460	430	890	890	890	249	523	861	..	..	96·74	..	26·75	1,858	57·92	..	..
108		Sachin, Local Funds	17,103	263·12	..	P	152	153	305	..	306	222	68	294	6	5	96·07	83·33	17·48	333	19·47	..	..
109		Jambughora, Local Funds	6,837	47·81	..	R	3	3	6														
							..	..	..	..	..	..	..	..	..	..	..	..	..	209	30·57	..	..
	Totals by Establishments in Eastern Guzerat Registration District.	Municipal	3,37,685	22512·33	8	P	5,587	5,225	10,812	1,483	10,852	7,981	2,373	10,446	1,076	687	96·61	63·97	32·07	11,083	32·82	236	0·69
		Local Funds	24,96,777	244·02	35	R	799	275	1,074														
						P	36,851	32,932	69,783	2,082	70,225	42,163	24,358	67,943	3,101	1,991	97·37	65·55	28·01	60,871	24·39	1,260	0·50
						R	2,443	649	3,092														
		Native States	11,43,028	120·40	19	P	17,438	16,397	33,835	1,789	34,006	10,476	18,986	33,169	166	110	98·03	67·07	29·11	28,141	24·61	..	..
						R	112	52	164														
		Grand Total	39,77,490	201·49	62	P	59,876	54,554	1,14,430	1,915	1,15,083	60,570	45,717	1,11,558	4,343	2,788	97·49	64·39	28·76	1,00,095	25·18	1,496	0·38
						R	3,354	976	4,330														
	THE WESTERN GUZERAT CIRCLE.																						
	Kattywar States.																						
110	Jhalawad Prant	Limri	45,940	163·82	1	P	911	866	1,777	1,815	1,787	638	1,032	1,694	38	13	95·32	34·21	37·16	2,134	46·45	..	..
						R	27	11	38														
111		Dhrángdra	1,00,000	87·26	1	P	1,255	1,247	2,502	2,523	2,502	734	1,517	2,292	21	7	91·60	33·33	22·90	2,365	23·65	..	..
						R	17	4	21														
112		In 5 Other States	3,13,523	76·71	5	P	6,134	5,694	11,828	2,443	11,838	7,301	3,905	11,310	389	302	95·62	77·63	37·03	11,288	36·00	..	..
						R	275	114	389														
		Total	4,59,463	83·33	7	P	8,300	7,807	16,107	2,365	16,127	8,673	6,454	15,296	448	322	74·96	71·87	33·99	15,787	33·71	..	..
						R	319	129	448														
113	Hallar Prant	Rájkot	33,086	136·69	1		1,386	1,281	2,667	2,944	2,667	1,642	874	2,593	..	..	97·22	..	76·37	2,036	61·53	..	..
114		Do. Cantonment	3,684			P	106	101	207		2·7	150	50	200	70	58	124·63	82·85	70·03	1,765	479·09	..	..
						R	59	11	70														
115		Gondal	1,37,217	196·21	2	P	1,972	1,791	3,763	1,932	3,798	1,958	1,309	3,420	101	66	92·64	66·34	25·56	3,201	23·32	..	..
						R	65	36	101														
116		Morvi	90,616	85·33	1	P	1,281	1,185	2,466	2,484	2,492	1,055	1,236	2,357	18	16	95·57	88·88	26·18	2,845	31·39	..	..
						R	12	6	18														
117		Nawánagar	2,90,847	85·71	3	P	3,645	3,432	7,077	2,458	7,080	2,801	2,862	5,880	296	122	84·81	41·21	20·64	6,563	22·68	..	..
						R	167	129	296														
118		In 3 Other States	91,754	127·95	3	P	2,980	3,003	5,983	2,060	6,037	2,342	2,840	5,291	203	87	89·88	43·93	58·61	3,879	42·27	..	..
						R	123	75	198														
		Total	6,47,204	105·39	10	P	11,370	10,793	22,163	2,285	22,281	9,848	9,261	19,741	688	349	90·64	51·10	31·04	20,289	31·35	..	..
						R	426	257	683														
119	Sorath Prant	Junágarh	3,80,921	100·24	4	P	4,017	3,814	7,831	2,188	7,847	4,273	3,095	7,503	926	786	95·81	85·15	21·76	7,854	20·61	..	..
						R	553	370	923														
120		Jetpur	95,620	165·37	1	P	1,286	1,199	2,485	2,516	2,485	1,143	923	2,116	81	25	85·15	80·64	22·39	2,547	26·63	..	..
						R	18	13	31														
121		Porbandur	72,077	134·69	1	P	1,035	949	1,984	2,023	1,984	740	1,132	1,939	39	36	97·73	92·30	27·39	2,292	31·79	..	..
						R	29	10	39														
122		Bantwa	40,314	193·44	1	P	1,282	1,104	2,386	2,550	2,386	801	1,470	2,365	164	153	99·11	93·29	62·46	2,478	61·46	..	..
						R	72	92	164														
123		In 4 other States	45,377	204·41	4	P	3,840	3,705	7,545	1,940	7,559	3,367	3,440	7,007	217	166	92·87	76·49	158·07	4,085	90·04	..	
						R	112	105	217														
		Total	6,34,309	118·70	11	P	11,460	10,771	22,231	2,146	22,261	10,324	10,060	20,930	1,377	1,166	94·14	84·93	34·83	19 256	30·35	..	..
						R	784	590	1,374														
124	Gohelwád Prant	Bhaunagar	3,99,638	143·57	6	P	7,314	7,377	14,691	2,526	14,719	6,936	6,325	13,524	465	269	92·05	57·85	34·51	12,506	31·29	..	..
						R	251	214	465														
125		Pálitána	1,71,965	30·871	1	P	1,240	1,140	2,380	2,427	2,380	737	1,066	1,843	47	28	77·43	59·57	24·05	2,039	23·34	..	
						R	26	21	47														
126		Wala			1	P	1,042	1,034	2,076	2,400	2,076	1,402	620	2,022	324	243	97·39	75·00		2,320			
						R	213	111	324														
		Total	5,71,653	171·10	8	P	9,596	9,551	19,147	2,498	19,175	9,075	8,011	17,389	836	540	90·81	64·59	31·37	16,865	29·50	..	..
						R	490	346	836														
		Kattywar States Total	23,12,629	113·69	36	P	40,726	38,922	79,648	2,305	79,844	37,020	3,3786	73,356	3,349	2,377	93·10	71·14	32·75	72,107	31·22	..	
						R	2,019	1,322	3,341														

Number.	Circles and Districts.	Population of District according to Census of 1872.	Average population per square mile.	Average number of Vaccinators employed throughout the season	Total Number of Persons Vaccinated.			Average Number of Persons vaccinated by each Vaccinator.	Primary Vaccination.				Re-Vaccination.		Percentage of Successful Cases.		Persons successfully vaccinated per 1,000 of population.	Average annual number of persons successfully vaccinated during previous five years.		Average annual number of deaths from small-pox during previous five years.	
									Total.	Successful.			Total.	Successful.	Primary.	Re-Vaccination.		No.	Ratio per 1,000	No.	Ratio per 1,000
										Under 1 year.	Over 1 and under 6 years.	Total of all Ages.									
1	2	3	4	5	6			7	8	9	10	11	12	13	14	15	16	17	18	19	20
	The Pa'lanpur States.				Males.	Females	Total.														
127	Deesa	49,821	..	1	1,040	969	2,009	2,598	2,009	924	973	1,944	..	..	96·76	..	39·02	1,852	31·30	..	..
128	Do. Cantonment	9,335	..		322	267	589		589	325	207	574	..	..	97·43	..	61·49			..	..
129	Pálanpur .. Pálanpur	1,56,816	65·77	2	2,773	2,546	5,319	2,659	5,335	2,436	2,482	4,960	..	..	93·25	..	31·63	4,091	26·09	..	..
130	Rádhanpur	91,579	98·57	1	1,018	1,033	2,051	2,051	2,051	595	964	1,570	..	..	76·54	..	17·14	1,630	17·79	..	..
131	In 3 other States	1,95,035	71·23	3	P 3,803	3,676	7,479	2,595	7,495	4,082	2,948	7,162	305	261	95·76	85·57	38·05	5,017	25·72	..	..
					R 156	149	305														
	Total ..	5,02,586	83·19	7	P 8,956	8,491	17,447	2,536	17,479	8,362	7,574	16,210	305	261	92·90	85·57	32·77	12,590	25·05	..	..
					R 156	149	305														
	Totals by Establishments in Western Guzerat Circle .. Government	95,926	356·60	2	P 2,854	2,618	5,472	2,771	5,472	3,041	2,104	5,311	70	58	97·06	82·85	55·97	4,152	43·28	..	..
					R 59	11	70														
	Native States	27,19,289	119·22	41	P 46,828	44,795	91,623	2,322	91,851	43,241	39,256	84,255	3,584	2,580	91·95	72·14	31·93	80,635	29·61	..	..
					R 2,116	1,460	3,576														
	Grand Total ..	28,15,215	121·99	43	P 49,682	47,413	97,095	2,343	97,323	46,282	41,360	89,566	3,654	2,638	92·24	72·35	32·76	84,787	30·11	..	..
					R 2,175	1,471	3,646														
	The Sind Registration District.																				
132	Kurrachee Collectorate .. Kurrachee Town	53,526	2676·30	2	P 1,163	416	1,579	1,531	1,581	635	227	1,480	1,485	1,213	93·73	81·06	50·31	3,774	70·51	21	0·39
					R 1,429	55	1,484														
133	In the 13 Rural Circles, Local Funds ..	3,69,969	26·29	9	P 6,700	5,754	12,454	2,641	12,468	7,803	3,910	12,291	11,318	10,016	98·69	88·49	60·29	15,277	41·29	52	0·15
					R 6,454	4,864	11,318														
	Total ..	4,23,495	30·05	11	P 7,863	6,170	14,033	2,440	14,049	8,438	4,137	13,771	12,803	11,229	98·13	87·71	59·03	19,051	44·98	73	0·17
					R 7,883	4,919	12,802														
134	Hyderabad Collectorate .. Hyderabad Town	35,272	..	1	P 468	481	949	1,581	949	776	161	942	632	564	99·26	89·24	41·57	2,054	58·23	46	1·30
					R 608	24	632														
135	In the 13 Rural Circles, Local Funds ..	6,86,675	..	12	P 11,493	9,180	20,673	2,675	20,755	10,373	8,504	19,799	11,469	8,750	95·77	76·53	41·58	30,950	45·07	46	0·07
					R 8,014	3,419	11,433														
	Total ..	7,21,947	79·75	13	P 11,961	9,661	21,622	2,591	21,704	11,149	8,665	20,741	12,101	9,314	95·92	77·19	41·62	33,004	45·71	92	0·12
					R 8,622	3,443	12,065														
136	Thar and Parkar .. Umarkot Town	3,999	..	..	..	..	..	*Vide*	Statement No.	III.	..	..	..	..	..	..	..	..	..	3	0·76
137	In the 7 Rural Circles, Local Funds ..	1,76,762	..	6	P 4,376	3,551	7,927	2,081	7,964	3,258	4,033	7,530	4,564	3,325	94·99	72·88	61·41	12,552	71·01	9	0·05
					R 1,966	2,596	4,562														
	Total ..	1,80,761	14·20	6	P 4,376	3,551	7,927	2,081	7,964	3,258	4,033	7,530	4,564	3,325	94·99	72·88	60·05	12,552	69·43	12	0·06
					R 1,966	2,596	4,562														
138	Shikárpur Collectorate .. Shikárpur Town	38,107	7621·40	1	P 890	825	1,715	3,303	1,776	1,253	332	1,638	1,590	1,132	95·51	71·28	72·69	1,609	42·22	9	0·24
					R 1,504	84	1,588														
139	Sukkur do.	13,318	4439·33	1	P 992	445	1,437	2,015	1,437	956	446	1,434	580	576	99·77	99·65	150·92	1,139	85·52	..	..
					R 518	60	578														
140	Rohri do.	8,580	1430·00	..	..	..	..	*Vide*	Statement No.	III.	..	..	..	..	..	..	..	253	29·48	..	..
141	Lárkhána do.	10,643	..	..	..	..	..		Do.				..	..	..	..	..	..	..	..	..
142	In the 17 Rural Circles, Local Funds ..	7,05,579	80·18	13	P 10,466	8,814	19,280	2,896	19,341	11,407	6,752	18,738	18,595	15,710	97·18	85·54	48·82	33,212	47·05	6	0·08
					R 6,483	11,882	18,365														
	Total ..	7,76,227	88·08	15	P 12,348	10,084	22,432	2,837	22,554	13,616	7,530	21,810	20,765	17,418	97·22	84·83	50·53	36,213	46·65	15	0·02
					R 8,505	12,026	20,531														

143	Upper Sind Frontier	Jacobabad Town	5,205	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0·19
144		In the 3 Rural Circles, Local Funds	84,780	..	3	P. 2,962 R. 1,580	2,388 2,225	5,350 3,805	3,052	5,386	2,524	2,223	4,850	3,837	2,847	90·65	74·82	90·78	4,616	54·44	2	0·02
		Total	89,985	47·03	3	P. 2,962 R. 1,580	2,388 2,225	5,350 3,805	3,052	5,386	2,524	2,223	4,850	3,837	2,847	90·65	74·82	85·56	4,616	51·29	3	0·03
	NATIVE STATE.																							
145	Khairpur State		1,30,350	48·14	2	P. 2,075 R. 124	1,700 13	3,775 137	1,956	3,775	1,439	2,029	3,719	137	98	98·51	71·53	29·27	4,574	35·09	..	..
	Totals by Establishments in Sind Registration District	Municipal	1,40,223	5,007·96	5	P. 3,513 R. 4,059	2,167 223	5,680 4,282	1,992	5,743	3,620	1,166	5,494	4,287	3,485	96·72	81·38	64·03	8,329	62·96	76	0·54
		Local Fund	20,52,192	54·56	43	P. 35,997 R. 24,497	29,687 24,986	65,684 49,483	2,678	65,914	35,365	25,422	63,208	49,783	40,648	96·23	82·15	50·60	96,607	47·55	119	0·05
		Native States	1,30,350	48·14	2	P. 2,075 R. 124	1,700 13	3,775 137	1,956	3,775	1,439	2,029	3,719	137	98	98·51	71·53	29·28	4,574	35·09	..	..
		Grand Total	23,22,765	47·11	50	P. 41,585 R. 28,680	33,554 25,222	75,139 53,902	2,581	75,432	40,424	28,617	72,421	54,207	44,231	96·38	82·06	50·22	1,10,010	47·36	195	0·08
	THE BARODA CIRCLE.																							
146	Baroda States		20,00,225	185·77	31	P. 36,841 R. 57	31,538 25	68,379 82	2,208	68,944	25,401	33,278	61,371	83	51	89·75	62·10	30·77	32,296	16·14	..	..
	THE CUTCH CIRCLE.																							
147	Cutch States		4,87,305	74·97	15	P. 6,999 R. 42	6,691 15	13,690 57	916	13,690	5,005	7,513	12,645	57	40	92·37	70·18	26·03	4,023	8·26	..	..
	ADEN.																							
148	Aden Municipality		19,289	1,753·54	1	P. 427 R. 6	226 ..	653 6	659	653	104	336	567	6	5	86·83	83·33	29·65	891	46·19	..	..
	TOTALS OF THE BOMBA PRESIDENCY.	BY ESTABLISHMENTS.																						
		Government	95,926	356·60	2	P. 2,854 R. 59	2,618 11	5,472 70	2,771	5,472	3,041	2,104	5,311	70	58	97·06	82·85	55·97	4,152	43·28	..	..
		Municipal	16,39,737	9,212·01	43	P. 27,548 R. 8,985	22,702 963	50,250 9,948	1,400	50,802	29,920	13,489	46,335	9,984	6,645	92·21	66·79	32·39	55,656	33·94	1,989	1·21
		Cantonment	28,450	7,112·50	1	P. 477 R. 18	368 10	845 28	873	862	670	134	804	28	5	95·14	17·86	28·43	748	26·29	32	1·12
		Local Funds	1,45,56,783	117·17	219	P. 1,78,426 R. 30,894	1,62,572 27,947	3,40,998 58,841	1,826	3,42,886	1,68,748	1,44,684	3,26,670	59,155	46,944	95·79	70·78	25·66	3,80,772	20·15	9,889	0·68
		Native States	87,12,237	122·85	143	P. 1,28,176 R. 4,402	1,18,597 2,826	2,46,773 7,228	1,776	2,47,935	1,01,615	1,16,608	2,28,333	7,241	4,339	92·52	60·03	26·76	1,95,735	22·47	..	..
		In British Territory	1,62,14,049	130·54	264	P. 206,727 R. 39,953	1,85,857 28,928	3,92,584 68,881	1,748	3,95,040	1,99,591	1,58,496	3,74,289	69,231	53,647	95·34	77·87	26·31	4,39,838	27·12	11,910	0·73
		In Native States Territory	88,19,084	123·53	144	P. 1,30,754 R. 4,405	1,21,000 2,829	2,51,754 7,234	1,799	2,52,917	1,04,403	1,18,523	2,33,161	7,247	4,344	92·61	60·05	26·93	1,97,225	22·36	..	..
		Grand Total	2,50,33,133	127·98	408	P. 3,37,481 R. 44,358	3,06,857 31,757	6,44,338 76,115	1,766	6,47,957	3,03,994	2,77,019	6,07,453	76,478	57,991	94·57	76·19	26·58	6,37,063	25·44	11,910	0·47

Statement No. II. showing the Cost of the Department

No.	Circles and Districts.	Establishment.																
		Deputy Sanitary Commissioners.	Superintendents of Circles.	Inspectors of Sanitation and Vaccination.			Assistant Superintendents of Vaccination.			Clerks.	Vaccinators.						Native States.	Havildars and Peons.
														Local Funds.				
				1st Class.	2nd Class.	3rd Class.	1st Class.	2nd Class.	3rd Class.		Government.	Municipal.	Cantonment.	1st Class.	2nd Class.	3rd Class.		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	THE NORTHERN DECCAN REGISTRATION DISTRICT.																	
	Administrative Charges	1	...	1	1	5	...	...	...	2	...	...	...	...	...	...	...	11
1	Khandesh Collectorate	...	...	...	...	...	...	...	...	...	...	1	...	1	7	9	...	17
2	Násik do.	...	...	...	...	...	...	...	...	...	...	1	...	1	4	6	1	13
3	Ahmednagar do.	...	...	...	...	...	...	...	...	...	...	1	...	1	5	5	...	12
4	Poona do.	...	...	...	...	...	...	...	...	...	...	3	1	1	4	5	...	13
5	Sholápur do.	...	...	...	...	...	...	...	...	...	...	3	...	1	3	5	1	13
	Total ..	1	...	1	1	5	...	...	...	2	...	9	1	5	23	30	2	79
	THE SOUTHERN DECCAN REGISTRATION DISTRICT.																	
	Administrative Charges	1	...	...	2	3	...	...	...	2	...	...	...	...	...	...	...	9
6	Satara Collectorate	...	...	...	...	...	...	...	...	...	...	1	...	1	5	7	5	19
7	Belgaum do.	...	...	...	...	...	...	...	...	...	...	1	...	1	3	7	...	12
8	Dharwar do.	...	...	...	...	...	...	...	...	...	...	3	...	1	5	5	1	15
9	Kaládgi do.	...	...	...	...	...	...	...	...	...	...	5	...	1	3	4	...	13
10	Kolhápur States	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	11	12
11	Southern Marátha Jahagirs ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13	13
	Total ..	1	...	...	2	3	...	...	1	2	...	10	...	4	16	23	30	93
	THE KONKAN REGISTRATION DISTRICT.																	
	Administrative Charges	1	...	1	1	2	...	...	...	2	...	...	...	...	...	...	...	8
12	Kanara Collectorate	...	...	...	...	...	...	...	...	...	...	...	...	1	3	7	...	11
13	Ratnágiri do.	...	...	...	...	...	...	...	...	...	...	...	...	1	6	6	1	17
14	Colába do	...	...	...	...	...	...	...	...	...	...	...	...	1	2	2	1	6
15	Tanna do.	...	...	...	...	...	...	...	...	...	...	2	...	1	5	5	1	14
	Total ..	1	...	1	1	2	...	...	..	2	...	2	...	4	16	20	3	56
	THE PRESIDENCY CIRCLE.																	
	Administrative Charges	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
16	Bombay	...	...	...	...	...	...	1	...	2	...	9	...	...	...	...	...	3
	Total ..	...	1	...	...	...	...	1	...	2	...	9	...	...	...	...	...	3
	THE EASTERN GUZERAT REGISTRATION DISTRICT.																	
	Administrative Charges	1	...	...	...	5	...	...	...	2	...	...	...	...	...	...	...	9
17	Surat Collectorate	...	...	...	...	...	...	...	...	...	...	1	...	1	3	4	2	11
18	Broach do.	...	...	...	...	...	...	...	...	...	...	1	...	1	1	3	1	7
19	Kaira do.	...	...	...	...	...	...	...	...	...	...	1	...	1	3	4	...	9
20	Panch Máhals	...	...	...	...	...	...	...	...	...	...	...	...	1	2	2	...	5
21	Ahmedabad Collectorate ..	...	...	...	...	...	...	...	...	...	...	5	...	1	3	5	...	14
22	Mahi Kánta Agency	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5	2
23	Rewa Kánta do.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11	11
	Total ..	1	...	...	...	5	...	...	...	2	...	8	...	5	12	18	19	68
	THE E STERN GUZERAT CIRCLE																	
	Administrative Charges	...	1	...	...	...	...	1	1	2	...	...	...	...	...	...	...	6
24	Kattywar	...	...	...	...	...	...	...	..	...	1	...	...	...	...	...	35	36
25	Pálanpur	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	6	7
	Total ..	...	1	...	...	...	...	1	1	2	2	...	..	...	...	...	41	49
	THE SIND REGISTRATION DISTRICT.																	
	Administrative Charges	1	...	1	1	4	...	...	...	2	...	...	...	...	...	...	...	10
26	Kurrachi Collectorate	...	...	...	...	...	...	...	...	...	...	2	...	1	4	4	...	9
27	Hyderabad do.	...	...	...	...	...	...	...	...	...	...	1	...	2	5	5	...	13
28	Thar and Párkar	...	...	...	...	...	...	...	...	...	...	...	...	1	2	3	...	6
29	Shikárpur Collectorate	...	...	...	...	...	...	...	...	...	...	2	...	1	6	6	2	17
30	Upper Sind Frontier	...	...	...	...	...	...	...	...	...	...	...	...	1	1	1	...	3
	Total ..	1	...	1	1	4	...	...	...	2	...	5	...	6	18	19	2	58
	THE BARODA CIRCLE.																	
31	Baroda States	...	...	1	1	1	...	...	...	...	...	...	...	...	...	...	31	34
	THE CUTCH CIRCLE.																	
32	Cutch States	...	...	...	...	..	1	...	...	...	...	...	...	...	...	...	15	16
	THE ADEN MUNICIPALITY.																	
33	Aden	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
	TOTAL FOR THE BOMBAY PRESIDENCY.	5	2	4	6	20	1	2	2	14	2	44	1	24	85	110	143	456

RETURN.

in the Bombay Presidency during the year 1877-78.

EXPENDITURE.				PAID FROM							
Pay of Establishment.	Travelling Allowances.	Contingencies.	Total cost.	Provincial Funds.	Local Funds.	Municipal Funds.	Canton-ment Funds.	Native States Funds.	Total.	Number of all successful vaccinations and re-vaccinations.	Average cost of each successful case.
20	21	22	23	24	25	26	27	28	29	30	31
Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.		Rs. a. p.
14,449 12 6	2,107 3 11	706 0 3	17,263 0 8	17,263 0 8	....	....	....	....	17,263 0 8	....	....
5,468 12 5	....	143 6 6	5,612 2 11	....	5,372 2 11	240 0 0	....	....	5,612 2 11	25,236	0 3 7
3,645 12 11	....	78 6 3	3,724 3 2	....	3,150 3 2	264 0 0	....	310 0 0	3,724 3 2	13,300	0 4 6
3,438 2 2	....	108 1 3	3,546 3 5	....	3,276 3 5	270 0 0	....	....	3,546 3 5	16,099	0 3 6
3,987 3 10	....	127 4 5	4,114 8 3	....	3,043 14 7	858 11 3	211 14 5	....	4,114 8 3	15,873	0 4 2
3,794 10 9	....	140 2 0	3,934 12 9	....	2,730 2 0	869 10 9	....	335 0 0	3,934 12 9	15,330	0 4 1
34,784 6 7	2,107 3 11	1,303 4 8	38,194 15 2	17,263 0 8	17,572 10 1	2,502 6 0	211 14 5	645 0 0	38,194 15 2	85,838	0 7 1
14,796 6 11	2,329 1 0	1,176 15 8	18,302 7 7	18,302 7 7	....	....	....	....	18,302 7 7	....	....
5,581 0 0	....	165 0 0	5,746 0 0	....	4,179 1 3	279 5 9	....	1,287 9 0	5,746 0 0	33,640	0 2 9
3,437 3 2	....	48 11 1	3,485 14 3	....	3,244 9 5	241 4 10	....	....	3,485 14 3	14,637	0 3 10
4,254 15 1	....	52 11 10	4,307 10 11	....	3,343 3 11	716 7 0	....	248 0 0	4,307 10 11	17,230	0 4 0
3,234 9 0	....	102 14 7	3,337 7 7	....	2,449 10 1	887 13 6	....	....	3,337 7 7	14,179	0 3 9
3,763 11 11	....	147 2 1	3,910 14 0	....	....	....	....	3,910 14 0	3,910 14 0	11,769	0 5 4
3,124 8 8	....	61 14 7	3,186 7 3	....	....	....	....	3,186 7 3	3,186 7 3	7,927	0 6 5
38,192 6 9	2,329 1 0	1,755 5 10	42,276 13 7	18,302 7 7	13,216 8 8	2,124 15 1	....	8,632 14 3	42,276 13 7	99,382	0 6 10
11,115 14 11	1,766 7 1	918 4 9	13,800 10 9	13,800 10 9	....	....	....	....	13,800 10 9	....	....
3,017 12 10	....	56 14 6	3,074 11 4	....	3,074 11 4	....	....	....	3,074 11 4	11,742	0 5 1
4,283 13 0	....	148 15 10	4,432 12 10	....	3,782 10 6	....	....	650 2 4	4,432 12 10	34,128	0 2 1
1,701 0 0	....	41 14 8	1,742 14 8	....	1,512 11 2	....	....	230 3 6	1,742 14 8	8,302	0 3 6
3,853 4 10	....	121 4 2	3,974 9 0	....	3,088 1 4	584 2 7	....	302 5 1	3,974 9 0	16,309	0 4 6
23,971 13 7	1,766 7 1	1,287 5 11	27,025 10 7	13,800 10 9	11,458 2 4	584 2 7	....	1,182 10 11	27,025 10 7	70,481	0 6 2
4,200 0 0	360 0 0	57 14 10	4,617 14 10	4,617 14 10	....	....	....	....	4,617 14 10	....	....
5,329 5 4	....	2,592 14 0	7,922 3 4	....	....	7,922 3 4	....	....	7,922 3 4	11,862	0 10 8
9,529 5 4	360 0 0	2,650 12 0	12,540 2 2	4,617 14 10	....	7,922 3 4	....	....	12,540 2 2	11,862	1 0 11
12,383 11 9	2,262 14 0	928 7 3	15,525 1 0	15,525 1 0	....	....	....	....	15,525 1 0	....	....
3,113 5 4	....	246 9 4	3,359 14 8	....	2,495 12 8	343 8 0	....	520 10 0	3,359 14 8	18,934	0 2 10
1,903 15 0	....	240 7 6	2,144 6 6	....	1,594 6 6	261 0 0	....	289 0 0	2,144 6 6	11,779	0 2 11
2,519 12 3	....	246 4 2	2,766 0 5	....	2,502 0 5	264 0 0	....	....	2,766 0 5	21,000	0 2 [illegible]
1,446 13 7	....	102 15 6	1,549 13 1	....	1,549 13 1	....	....	....	1,549 13 1	10,017	0 2 6
3,681 2 7	....	132 2 6	3,813 5 1	....	2,375 10 5	1,437 10 8	....	....	3,813 5 1	26,468	0 2 4
1,224 0 0	....	60 0 0	1,284 0 0	....	....	....	....	1,284 0 0	1,284 0 0	10,632	0 2 10
2,734 10 0	....	40 10 5	2,775 4 5	....	....	....	....	2,775 4 5	2,775 4 5	15,516	0 2 10
28,957 6 6	2,262 14 0	1,997 8 8	33,217 13 2	15,525 1 0	10,517 11 1	2,306 2 8	...	4,868 14 5	33,217 13 2	114,346	0 4 8
12,754 13 9	2,069 1 4	862 0 9	15,685 15 10	15,685 15 10	....	....	....	....	15,685 15 10	....	....
12,778 1 1	....	355 4 4	13,133 5 5	273 0 0	....	....	....	12,860 5 5	13,133 5 5	75,733	0 2 9
2,026 0 0	....	12 0 0	2,038 0 0	136 0 0	....	....	126 0 0	1,776 0 0	2,038 0 0	16,471	0 1 11
27,558 14 10	2,069 1 4	1,229 5 1	30,857 5 3	16,094 15 10	....	....	126 0 0	14,636 5 5	30,857 5 3	92,204	0 5 4
16,103 4 10	2,420 1 7	821 3 7	19,344 10 0	19,344 10 0	....	....	....	....	19,344 10 0	....	....
2,696 7 7	560 6 11	206 12 7	3,463 11 1	....	3,128 2 1	335 9 0	....	....	3,463 11 1	25,000	0 2 2
3,659 13 8	....	160 11 3	3,820 8 11	....	3,472 8 11	348 0 0	....	....	3,820 8 11	30,055	0 2 1
1,514 2 1	....	72 9 9	1,586 11 10	....	1,586 11 10	....	....	....	1,586 11 10	10,855	0 2 4
4,813 8 4	782 6 9	200 6 1	5,796 5 2	....	4,280 2 11	748 2 3	....	768 0 0	5,796 5 2	43,045	0 2 2
896 10 0	....	42 7 9	939 1 9	....	939 1 9	....	....	....	939 1 9	7,697	0 1 11
29,683 14 6	3,762 15 3	1,504 3 0	34,951 0 9	19,344 10 0	13,406 11 6	1,431 11 3	....	768 0 0	34,951 0 9	116,652	0 4 9
10,928 8 2	67 0 3	346 8 10	11,342 1 3	....	....	....	....	11,342 1 3	11,342 1 3	61,422	0 2 11
2,831 8 5	2,910 9 9	5 0 0	5,747 2 2	....	....	....	....	5,747 2 2	5,747 2 2	12,685	0 7 3
216 0 0	....	....	216 0 0	....	....	216 0 0	....	....	216 0 0	572	0 6 1
2,06,654 4 8	17,635 4 7	12,079 6 10	2,36,369 0 1	1,04,948 12 8	86,171 11 8	17,087 8 11	337 14 5	47,823 0 5	2,36,369 0 1	665,444	0 5 8

B.—VACCINATION RETURN.

STATEMENT No. III. showing Dispensary Vaccination in the Bombay Presidency during the year 1877-78.

	Districts.	Number of Dispensaries in each District to which a Vaccinator is attached.	Average number of Vaccinators attached to dispensaries during the season.	Total number of persons vaccinated.			Average number of persons vaccinated by each Vaccinator.	Primary Vaccination.				Re-Vaccination.		Percentage of Successful cases.	
								Total.	Successful.			Total.	Successful.	Primary.	Re-Vaccination.
									Under one year.	1 and under 6.	Total of all ages.				
1		2	3	4			5	6	7	8	9	10	11	12	13
				Males.	Females.	Total.									
	THE NORTHERN DECCAN REGISTRATION DISTRICT.														
Khandesh Collectorate.	Parola	..	..	9	10	19	19	19	10	4	14	..	..	73·68	..
	Erandol	..	..	107	112	219	219	219	122	97	219	..	..	100	..
	Dharangaon	..	..	P. 70	46	116	206	116	35	64	100	90	79	86·21	87·78
	Bhadgaon	..	..	R. 81	9	90									
		..	..	13	3	16	16	16	1	9	10	..	..	62·50	..
	Nandurbar	..	..	82	70	152	152	152	55	85	140	..	..	92·11	..
	Chopra	..	..	97	102	199	199	199	154	37	191	..	..	95·98	..
	Shirpur	..	..	P. 90	91	190	191	199	129	54	183	1	..	96·32	..
	Jalgaon	..	..	R. ..	1	1									
		..	..	77	61	138	138	141	85	27	112	..	..	81·16	..
	Total	..	..	P. 554	495	1,049	142	1,061	591	377	969	91	79	92·37	86·81
				R. 81	10	91									
Nasik Collectorate.	Sinnar	..	..	106	97	203	203	203	103	80	183	..	..	90·35	..
	Dindori	..	..	57	49	106	106	106	76	9	87	..	..	82·08	..
	Yeola	..	..	173	153	326	326	326	164	124	288	..	..	88·34	..
	Malegaon	..	..	48	27	75	75	75	60	11	71	..	..	94·67	..
	Total	..	..	384	326	710	177	710	403	224	629	..	..	88·59	..
Ahmednagar Collectorate.	Sangamner	..	..	P. 61	52	113	114	113	55	38	93	1	1	82·30	100
		..	..	R. 1	..	1									
Poona Collectorate.	Junnar	..	..	94	75	169	169	169	65	103	168	..	..	99·41	..
	Indapur	..	..	31	28	59	59	60	33	21	55	..	..	93·22	..
	Sirur	..	..	12	9	21	21	21	11	7	18	..	..	85·71	..
	Talegaon Dhamdhera	..	..	20	19	39	39	39	8	3	11	..	..	28·21	..
	Saswad	..	..	56	50	106	106	108	43	42	85	..	..	80·19	..
	Jejuri	..	..	37	42	79	79	81	28	32	60	..	..	75·95	..
	Total	..	..	250	223	473	67	478	188	208	397	..	..	83·93	..
Native States.	Peint state	..	..	6	3	9	9	9	1	8	9	..	..	100	..
	Akalkot	..	..	16	20	36	36	36	28	8	36	..	..	100	..
	Total	..	..	22	23	45	22	45	29	16	45	..	..	100	..
	TOTAL FOR THE NORTHERN DECCAN REGISTRATION DISTRICT.	..	..	P. 1,271	1,119	2,390	118	2,407	1,266	863	2,133	92	80	89·25	86·96
				R. 82	10	92									
	THE SOUTHERN DECCAN REGISTRATION DISTRICT.														
Belgaum Collectorate.	Parasgad	..	..	P. 41	46	87	89	87	48	35	83	2	2	95·40	100
		..	..	R. 2	..	2									
	Gokak	..	..	26	28	54	54	54	40	8	48	..	..	88·89	..
	Athni	..	..	44	42	86	86	86	19	26	45	..	..	52·33	..
	Total	..	..	P. 111	116	227	76	227	107	69	176	2	2	77·53	100
		..	..	R. 2	..	2									
Dharwar Collectorate.	Dhawar	..	..	P. 92	5	97	323	97	4	5	65	226	111	67·01	49·12
		..	..	R. 211	15	226									
	Hubli	..	..	5	..	5	5	5	3	2	5	..	..	100	..
	Haveri	..	..	7	2	9	9	9	1	7	9	..	..	100	..
	Total	..	..	P. 104	7	111	112	111	8	14	79	226	111	71·17	49·12
		..	..	R. 211	15	226									

	Districts.	Number of Dispensaries in each District to which a Vaccinator is attached.	Average number of Vaccinators attached to Dispensaries during the season.	Total number of persons vaccinated.			Average number of persons vaccinated by each Vaccinator.	Primary Vaccination				Re-vaccination.		Percentage of successful cases.	
									Successful.						
								Total.	Under one year.	1 and under 6.	Total of all ages.	Total.	Successful.	Primary.	Re-vaccination.
1		2	3	4			5	6	7	8	9	10	11	12	13
				Males.	Females.	Total.									
	The Southern Deccan Registration District—*continued.*														
Satara Collectorate.	Wai	...	..	P 88 R 2	81 ..	169 2	171	169	62	103	165	2	2	97·63	100
	Patan	..	..	58	54	112	112	112	50	62	112	..	..	100	..
	Islampur	...	...	P 128 R 1	129 1	257 2	259	259	157	82	241	2	1	93·77	50·00
	Karad	..	...	142	121	263	263	266	154	99	255	..	..	96·96	..
	Mhaswad	..	...	9	21	30	30	32	9	16	27	..	..	90·00	..
	Pusesawli	..	...	11	6	17	17	17	7	6	13	..	..	76·47	..
	Mahableshwar	..	...	P 10 R 9	12 24	22 33	55	22	5	14	19	33	27	86·36	81·82
	Total ..	...	...	P 446 R 12	424 25	870 37	130	877	444	382	382	37	30	95·63	81·08
Kolhapur States.	Kolhapur	..	..	P 357 R 450	371 74	728 524	1,252	728	320	244	567	524	421	77·88	80·34
Southern Maratha Jahagirs.	Miraj	..	..	104	72	176	176	176	89	71	162	..	..	92·05	..
	Mudhol	..	..	58	47	105	105	105	38	59	97	..	..	92·38	..
	Total ...	..	..	162	119	281	140	281	127	130	259	..	..	92·17	..
	Native States Total ..	..	..	P 519 R 450	490 74	1,009 524	511	1,009	447	374	826	524	421	81·86	80·34
	Total for the Southern Deccan Registration District...	..	..	P 1,180 R 675	1,037 114	2,217 789	188	2,224	1,006	839	1,913	789	564	86·29	71·48
	The Konkan Registration District.														
Kanara Collectorate.	Karwar	..	..	P 123 R 44	59 5	182 49	231	182	29	73	158	49	37	86·81	75·51
	Coompta	..	..	P 77 R 22	79 8	156 30	186	158	54	58	121	30	6	77·51	20·00
	Honawar	..	..	127	131	258	258	258	310	160	230	..	..	89·15	..
	Sirsi	..	..	P 118 R 2	105 ..	223 2	225	227	45	128	181	2	1	81·17	50·00
	Siddapur	..	..	19	9	28	28	28	3	19	22	..	..	78·57	..
	Yellapur	..	..	22	13	35	35	35	8	11	24	..	..	68·57	..
	Haliyal	..	..	87	101	188	188	188	92	70	169	..	..	89·89	..
	Supa	..	..	15	5	20	20	20	2	14	16	..	..	80·00	..
	Mundgod	..	..	P 16 R 2	14 ..	30 2	32	30	6	16	29	2	..	96·67	..
	Total ..	..	..	P 604 R 70	516 13	1,120 83	134	1,126	270	549	950	83	44	84·73	53·01
Ratnagri Collectorate.	Dapuli	..	...	56	35	91	91	110	36	40	78	..	..	85·71	..
	Vingorla	..	..	P 16 R 6	3 ...	19 6	25	19	6	11	17	6	..	89·47	..
	Total ..	..	..	P 72 R 6	38 ..	110 6	58	129	42	51	95	6	..	86·36	..
Colaba Collectorate.	Alibag	..	...	P 42 R 1	30 1	72 2	74	74	25	35	60	2	1	83·83	50·00
	Pen	..	...	39	27	66	66	69	41	9	50	..	..	75·76	..
	Mahad	..	..	P 20 R 1	23 ..	43 1	44	44	28	12	40	1	..	93·02	..
	Total ..	...	...	P 101 R 2	80 1	181 3	61	187	94	56	150	3	1	82·87	33·33

Districts.		Number of Dispensaries in each District to which a Vaccinator is attached.	Average number of vaccinators attached to Dispensaries during the season.	Total number of persons Vaccinated.			Average number of persons vaccinated by each Vaccinator.	Primary Vaccination.				Re-vaccination.		Percentage of successful cases.	
								Total.	Successful.			Total.	Successful.	Primary.	Re-vaccination.
									Under 1 year.	1 and under 6.	Total of All ages.				
1		2	3	4			5	6	7.	8	9	10	11	12	13
	THE KONKAN DISTRICT —*continued.*			Males.	Females	Total.									
Tanna Collectorate.	Tanna Police Corps	..	..	P 20	16	36	73	36	11	21	32	37	18	88·89	48·65
				R 37	..	37									
	Kalyán	..	..	57	63	120	120	122	56	45	101	..	..	84·17	..
	Bandora	..	..	P 137	129	266	271	266	68	176	261	5	3	98·12	60·00
				R 4	1	5									
	Uran	..	..	36	25	61	61	64	29	22	52	..	..	85·24	..
	Bhiwandi	..	..	78	84	162	162	104	43	147	..	..	..	90·74	..
	Kurla	..	..	102	71	173	173	173	89	32	121	..	..	69·94	..
	Bassien	..	..	P 47	22	69	75	70	30	33	64	6	..	92·75	..
				R 3	3	6									
	Máhim	..	..	P 54	32	86	88	99	30	45	75	2	..	87·21	..
				R 1	1	2									
	Matheran	..	..	5	3	8	8	8	1	6	7	..	..	87·50	..
		Total	..	P 536	445	981	115	1,000	418	423	860	50	21	87·67	42·00
				R 45	5	50									
Native States.	Sáwant Wári State	..	..	P 77	60	137	470	139	82	33	118	333	89	86·13	26·73
				R 325	5	333									
	TOTAL FOR THE KONKAN REGISTATION DISTRICT.	..	..	P 1,390	1,139	2,529	125	2,581	906	1,112	2,173	475	155	85·92	32·63
				R 451	24	475									
	THE EASTERN GUZERAT REGISTERATION DISTRICT.														
Surat Collectorate.	Ránder	..	..	93	101	194	194	195	167	16	183	..	..	93·84	..
	Bárdóli	..	..	55	63	118	118	119	84	24	108	..	..	90·75	..
	Mándvi	..	..	5	6	11	11	11	3	2	5	..	..	45·45	..
	Olpád	..	..	21	26	47	47	47	23	18	43	..	..	91·48	..
	Chikli	..	..	30	25	55	55	55	41	12	54	..	..	98·18	..
	Bulsar	..	..	P 116	115	231	237	231	142	66	213	6	1	92·20	16·66
				R 3	3	6									
	Párdi	..	..	11	12	23	23	23	21	2	23	..	..	100	..
	Kaliáwári	..	..	66	37	99	99	99	63	35	98	..	..	98·98	..
		Total	..	P 393	385	778	98	780	544	175	727	6	1	93·05	16·66
				R 3	3	6									
Branch Collectorate.	Ankleswar	..	..	P 60	54	114	122	116	92	15	107	8	1	92·24	12·50
				R 4	4	8									
	Hansot	..	..	19	28	47	47	48	31	14	45	..	..	93·75	..
	Elao	..	..	25	11	36	36	42	27	8	35	..	..	83·33	..
	Jambusar	..	..	181	176	357	357	357	212	132	350	..	..	98·03	..
		Total	..	P 285	269	554	140	563	362	169	537	8	1	95·38	12·50
				R 4	4	8									
Kaira Collectorate.	Kaira	..	..	P 151	25	176	178	176	15	17	88	2	1	50·00	50·00
				R 2	..	2									
	Dákor	..	..	134	133	267	267	267	195	67	262	..	..	98·12	
	Kapadwanj	..	..	P 346	294	640	645	640	485	130	618	5	1	96·56	20·00
				R 3	2	5									
	Borsad	..	..	290	225	515	515	515	282	117	400	..	..	77·66	..
	Mehmudabad	..	..	P 178	152	330	350	330	286	40	329	21	18	99·69	85·71
				R 19	1	20									
	Mahuda	..	..	P 152	106	258	259	258	132	89	221	1	1	85·65	100
				R ..	1	1									
		Total	..	P 1,251	935	2,186	369	2,186	1,395	460	1,918	29	21	91·04	74·07
				R 24	4	28									
Panch Mahals.	Godhra	..	..	P 223	171	394	591	394	341	48	389	197	187	98·73	94·92
				R 188	9	197									
Ahmedabad Collectorate.	Dholera	..	..	133	163	346	346	346	213	115	336	..	..	97·10	
	Sánand	..	..	P 108	124	232	237	232	195	37	232	5	5	100	
				R 4	1	5									
	Paránti	..	..	157	139	296	296	296	208	85	294	..	..	99·32	100
	Gogo	..	..	P 98	115	213	217	217	104	31	139	4	..	64·05	..
				R 1	3	4									
	Khárághora	..	..	10	5	15	15	23	10	7	17	..	..	73·91	..
		Total	..	P 556	546	1,102	222	1,114	730	275	1,018	9	5	91·38	55·55
				R 5	4	9									

	Districts.	Number of Dispensaries in each District to which a Vaccinator is attached.	Average number of Vaccinators attached to Dispensaries during the season.	Total number of persons Vaccinated.			Average number of persons vaccinated by each Vaccinator.	Primary Vaccination.				Re-vaccination.		Percentage of successful cases.	
								Total.	Successful.			Total.	Successful.	Primary.	Re-vaccination.
									Under 1 year.	1 and under 6.	Total of all ages.				
1		2	3	4			5	6	7	8	9	10	11	12	13
	The Eastern Guzerat Registration District —*continued.*			Males.	Females.	Total.									
Rewa Kánta States.	Bária	..	..	8	12	20	20	20	12	8	20	..	..	100	..
Máhi Kánta Agency.	Sadra	..	..	98	63	161	161	163	101	39	141	..	..	86.50	..
	Native States Total ..	..	..	106	75	181	90	183	113	47	161	..	..	..	..
	Total for the Eastern Guzerat Registration District	..	..	P 2,814 R 224	2,381 24	5,195 248	209	5,220	3,485	1,174	4,750	249	215	91·43	86·69
	The Western Guzerat Circle.														
Kattiwar.	Rájkot	..	..	P 5 R 72	.. 8	5 80	85	5	..	..	4	80	52	80·00	65·00
	Wadhwan	..	..	P 39 R 7	40 5	79 12	91	80	46	31	79	12	..	100	..
	Mánakwára	..	..	3	5	8	8	10	7	1	8	..	..	100	..
	Total ..	..	..	P 47 R 79	45 13	92 92	61	95	53	32	91	92	52	98·91	56·52
Native States.	Gondal	..	..	P 232 R 38	207 28	439 66	505	470	340	63	431	75	54	98·17	81·81
	Dhoráji	..	..	P 163 R 1	168 ..	331 1	332	336	194	51	245	1	1	74·02	100
	Upleta	..	..	P 104 R 5	88 3	192 8	200	229	108	68	180	8	3	93·75	37·50
	Bhayawadar	..	..	P 113 R 21	124 6	237 27	264	237	225	11	236	27	26	9·57	96·29
	Sarsai	..	..	19	15	34	34	45	23	..	23	..	..	82·35	..
	Limri	..	..	P 214 R 1	195 1	409 2	411	409	185	123	311	2	2	76·03	100
	Total ..	..	..	P 845 R 66	797 38	1,642 104	291	1,726	1,075	316	1,431	113	86	87·14	82·69
	Total for the Western Guzerat Circle ...	..	..	P 892 R 145	842 51	1,734 196	214	1,821	1,128	348	1,522	205	138	87·77	70·40
	The Sind Registration District.														
Kurrachee Collectorate.	Manora	..	..	20	16	36	36	37	17	11	33	..	..	91·67	..
	Keti Bandar	..	..	23	16	39	39	41	13	22	36	..	..	92·31	..
	Mirpur Batoro	..	..	P 57 R 13	67 6	124 19	143	126	85	20	105	19	15	84·67	78·94
	Tatta	..	..	14	10	24	24	24	12	2	16	..	..	66·67	..
	Jerruck	..	..	P 17 R 1	18 ..	35 1	36	36	26	5	31	1	1	88·57	100
	Bulakhan	..	..	P 9 R 4	1 ..	10 4	14	13	7	1	9	4	2	90·00	50·00
	Sehwan	..	..	P 97 R ..	56 1	153 1	154	154	26	20	75	1	1	49·01	100
	Total ..	..	..	P 237 R 18	184 7	421 25	64	431	186	81	305	25	19	72·44	76.00

	Districts.	Number of Dispensaries in each District to which a Vaccinator is attached.	Average Number of Vaccinators attached to Dispensaries during the season.	Total Number of Persons Vaccinated.			Average Number of Persons Vaccinated by each Vaccinator.	Primary Vaccination.				Re-vaccination.		Percentage of Successful Cases.	
									Successful.						
								Total.	Under one year.	1 and under 6.	Total of all ages.	Total.	Successful.	Primary.	Re-vaccination.
	1	2	3	4			5	6	7	8	9	10	11	12	13
	The Sind Registration District—*continued.*			Males.	Females.	Total.									
Hyderabad Collectorate.	Tharushah	..	..	P. 34	29	63	64	63	48	10	61	1	1	96·82	100
				R. 1	..	1									
	Hála	..	..	P. 12	6	18	52	18	6	10	16	34	29	88·89	85·30
				R. 34	..	34									
	Alahyar-jo-Tando	..	..	59	37	96	96	96	35	19	58	..	..	60·42	..
	Mirpur Khás	..	..	P. 46	52	98	115	98	44	39	85	17	14	86·73	82·35
				R. 16	1	17									
	Adam-jo-Tándo	..	..	P. 59	60	119	129	120	60	51	118	10	5	99·16	50·00
				R. 7	3	10									
	Tándo	..	..	P. 34	*32	66	77	66	21	34	64	11	9	96·97	81·82
				R. ..	11	11									
		Total	..	P. 244	216	460	89	461	214	163	402	73	58	87·39	79·45
				R. 58	15	73									
Thar and Párkar.	Nagar Párkar	..	..	33	31	64	64	77	25	30	55	..	..	85·94	..
	Mitti	..	..	P. 107	82	189	190	203	101	63	169	1	..	89·42	..
				R. ..	1	1									
	Umarkot	..	..	P. 141	94	235	259	235	96	91	193	24	14	82·13	58·33
				R. 22	2	24									
	Khipra	..	..	17	16	33	33	33	22	11	33	..	..	100	..
		Total	..	P. 298	223	521	136	548	244	195	450	25	14	86·37	56·00
				R. 22	3	25									
Shikárpur Collectorate.	Rohri	..	..	P. 153	106	259	643	259	236	12	251	384	146	96·91	38·02
				R. 377	7	384									
	Mehar	..	..	P. 41	16	57	82	57	39	15	57	25	23	100	92·00
				R. 24	1	25									
	Lárkhána	..	..	P. 590	479	1,069	2,086	1,073	340	500	922	1,031	338	86·25	33·23
				R. 853	164	1,017									
		Total	..	P. 784	601	1,385	937	1,389	615	527	1,230	1,440	507	88·81	35·55
				R. 1,254	172	1,426									
Mekran Coast.	Guadar	..	..	P. 46	36	82	83	82	2	64	68	1	1	82·93	100
				R. 1	..	1									
	Total for the Sind Registration District	..	..	P. 1,609	1,260	2,869	210	2,911	1,461	1,030	2,455	1,564	599	85·57	38·65
				R. 1,353	197	1,550									
	The Baroda Circle.														
Native States.	Pitlád	..	..	133	100	233	233	233	167	65	233	..	..	100	..
	Dábhoi	..	..	203	212	415	415	427	247	138	385	..	..	92·77	..
	Sojitra	..	..	120	67	187	187	187	81	94	183	..	..	97·86	..
	Sádra	..	..	9	4	13	13	13	3	4	7	..	..	53·84	..
	Sidhpur	..	..	307	184	491	491	491	246	197	444	..	..	90·43	..
	Deesa	..	..	16	17	33	33	33	8	23	31	..	..	93 94	..
	Pátan	..	..	250	202	452	452	453	291	132	430	..	..	95·13	..
	Kadi	..	..	52	46	98	98	98	18	44	62	..	..	63·21	..
	Bechraji	..	..	62	59	121	121	121	67	25	92	..	..	76·03	..
	Náosari	..	..	130	109	239	239	239	113	38	189	..	..	79·07	..
	Songarh	..	..	57	38	95	95	101	30	35	80	..	..	84·21	..
	Amreli	..	..	P. 292	231	523	526	533	260	205	465	3	1	88·91	33·33
				R. 2	1	3									
	Dhári	..	..	160	135	295	295	295	134	159	294	..	..	99·66	..
	Okhamandal	..	..	P. 29	13	42	45	42	9	25	34	3	..	80·95	..
				R. 3	..	3									
	Mánikwára	..	..	23	7	30	30	30	7	18	29	..	..	96·67	..
	Total for the Baroda Circle	..	..	P. 1,843	1,424	3,267	218	3,296	1,681	1,202	2,958	6	1	90·54	16·67
				R. 5	1	6									
	Totals for the British Territory	..	..	P. 7,540	6,288	13,828	161	13,967	7,253	4,548	12,274	2,312	1,103	88·76	48·02
				R. 2,007	290	2,297									
	Totals for the Native States	..	..	P. 3,459	2,914	6373	232	6,493	3,480	2,029	5,630	1,068	649	88·34	61·28
				R. 928	131	1,059									
	Grand Total for the Bombay Presidency	..	..	P. 10,999	9,202	20,201	178	20,460	10,733	6,568	17,904	3,380	1,752	88·62	52·20
				R. 2,935	421	3,356									

COMPARATIVE STATEMENT No. IV. showing the number of Persons primarily vaccinated and the number of those persons who were successfully vaccinated in the Bombay Presidency in each of the undermentioned official years.

Establishments.	Persons Primarily Vaccinated.																			
	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.	Total number.	Number successfully vaccinated.
	Year ended 31st December.		Years ended 31st March.																	
	1868.		1870.		1871.		1872.		1873.		1874.		1875.		1876.		1877.		1878.	
Government	274,422	257,180	280,148	261,554	245,625	229,514	79,022	73,398	3,446	3,012	3,208	2,867	4,517	4,365	4,706	4,556	5,518	5,346	5,472	5,311
Municipality	25,462	23,865	26,169	24,036	41,099	35,055	55,011	44,879	53,415	45,372	51,313	44,129	54,810	51,162	59,392	55,698	61,671	58,300	50,250	46,385
Local Funds	23,612	22,966	28,726	27,270	59,082	55,247	221,483	208,413	309,666	283,655	357,162	326,852	377,558	361,689	375,202	364,503	394,775	382,211	340,998	326,670
Cantonment	*	*	*	*	*	*	*	*	*	*	1,103	999	969	906	1,018	965	827	771	845	804
Native States	96,681	89,614	112,937	105,219	133,977	123,991	152,213	142,039	180,314	163,891	188,788	171,657	209,689	195,729	224,730	211,316	242,391	226,402	246,773	228,333
Dispensaries	6,076	5,363	9,882	8,405	9,241	7,894	13,792	11,998	16,685	14,652	18,560	16,403	19,393	17,463	19,954	18,156	19,996	18,486	20,201	17,904
Army. Europeans	†	†	907	907	960	960	1,080	1,080	1,517	1,517	1,122	1,122	728	728	825	825	1,973	1,973	1,313	1,313
Army. Natives	5,931	5,872	5,898	†	6,598	†	4,552	4,211	4,982	4,627	4,562	4,246	4,153	3,940	4,812	4,541	5,033	4,659	4,203	3,920
Total ...	432,184	404,860	464,667	427,391	496,582	452,661	527,153	486,018	570,025	516,726	625,818	568,275	671,817	635,982	690,639	660,556	732,184	698,148	670,055	630,590

Note.—Re-vaccinations are wholly excluded from this statement.
* The figures are included in those for the Native Army.
† The figures are not available.

STATEMENT appended to MAP illustrating the Distribution, &c., of CHOLERA in the BOMBAY PRESIDENCY during the Year 1877.

1	2	3	4	5	6	7	8	9		10	11	
District.	Number of Circles as shown in the Map.	Name of Circle.	Population of Circle.	Date of first case of cholera in the circle during the year.	Date of last case of Cholera in the circle during the year.	Total deaths from Cholera in the Circle during the year.	Ratio per 10,000.	Period of maximum intensity of the disease		Number of villages in each of the rural circles.	Number of those	
								From	To		Affected by Cholera.	Not affected by Cholera.
Khandesh.	1	Dhulia R. C.	55,480	16th July 1877.	5th Sept. 1877.	130	23·88	August	September	189	23	166
	2	Amalner R. C.	51,611	15th " "	7th " "	233	45·15	July	August	278	27	251
	3	Párola R. C.	28,252	10th " "	6th " "	15	5·31	August	Do.			
	4	Erandol R. C.	76,689	10th " "	18th " "	242	31·56	July	Do.	229	24	205
	5	Páchora R. C.	54,313	13th " "	14th " "	73	13·46	Do.	Do.	228	21	207
	6	Bhadgaon R. C.	30,467	13th " "	14th " "	60	19·68	Do.	Do.			
	7	Chálisgaon R. C.	44,568	4th " "	10th Aug. "	115	25·80	Do.	Do.	141	12	129
	8	Nizámpur R. C.	17,410	7th Sept. "	21st Sept. "	12	6·89	September	September	301	10	291
	9	Nandurbár R. C.	38,080	12th Aug. "	7th " "	7	1·84	August	August	218	2	216
	10	Taloda R. C.	35,278	28th Oct. "	11th Nov. "	10	2·83	November	November	300	1	299
	11	Sháháda R. C.	46,228	27th July "	17th Sept. "	38	8·22	August	August	208	9	199
	12	Virdel R. C.	63,350	29th " "	13th " "	126	19·89	Do.	Do.	168	21	147
	13	Shirpur R. C.	34,642	21st " "	7th Aug. "	75	21·65	July	Do.	183	21	162
	14	Chopra R. C.	37,882	18th " "	4th Sept "	80	21·12	Do.	July	146	21	125
	15	Yáwal R. C.	34,574	3rd Aug. "	30th Aug "	7	2·02	August	August	306	11	295
	16	Bhusáwal R. C.	63,398	6th " "	4th Sept. "	38	5·99	Do.	Do.	244	3	241
	17	Nasirabad R. C.	50,168	12th July "	4th " "	264	52·62	July	Do.	113	20	91
	18	Jamner R. C.	70,351	22nd " "	9th " "	73	10·38	Do.	Do.	197	5	192
	19	Dhulia T. C.	12,489	1st Aug. "	20th " "	74	59·25	August	September	1	1	..
	20	Nasirábad T. C.	9,941	27th July "	14th " "	17	17·10	September	Do.	1	1	..
Násik.	21	Násik R. C.	66,941	23rd June "	29th Aug. "	119	17·79	July	July	138	18	120
	22	Sinnar R. C.	64,872	14th May "	21st Nov. "	117	13·04	May	May	103	19	84
	23	Igatpuri R. C.	51,735	30th July "	14th Sept. "	56	9·63	August	August	130	14	116
	24	Dindori R. C.	68,626	1st " "	17th Nov. "	184	26·81	Do.	Do.	128	29	99
	25	Niphád R. C.	86,017	20th May "	23rd Sept. "	246	28·48	Do.	Do.	122	19	103
	26	Chándor R. C.	50,130	27th June "	31st Dec. "	188	37·50	September	September	112	14	98
	27	Sáwargaon R. C.	41,852	19th April "	15th Oct. "	178	42·53	May	May	120	21	99
								July	July			
	28	Nándgaon R. C.	30,230	22nd June "	30th Sept. "	92	30·43	August	August	92	12	80
	29	Málegaon R. C.	62,716	10th June "	14th Oct. "	280	44·65	June	July	153	26	127
	30	Báglán R. C.	59,051	15th May "	20th Nov. "	195	33·02	Do.	Do.	101	26	75
	31	Kalwan R. C.	54,152	25th June "	20th Dec. "	71	13·11	Do.	June	Unknown.	12	..
Ahmednagar.	32	Násik T. C.	22,436	1st Aug. "	11th Sept. "	158	70·42	July	July	1	1	..
	33	Yeola T. C.	17,461	22nd June "	17th " "	65	37·80	Do.	August	1	1	..
	34	Málegaon C. T.	4,240	15th " "	18th " "	14	33·02	August	Do.	1	1	..
	35	Ahmednagar R. C.	73,064	1st April "	11th Oct. "	158	21·62	May	June	116	36	80
	36	Akola R. C.	60,591	22nd May "	30th Nov. "	272	44·89	July	July	157	34	123
	37	Jámkhed R. C.	72,994	25th Feb. "	25th " "	170	23·29	Do.	Do.	77	14	63
	38	Párner R. C.	82,422	9th April "	8th Oct. "	754	91·48	June	Do.	122	41	81
	39	Shrigonda R. C.	64,936	29th Jan. "	15th " "	157	24·18	Do.	June	86	20	66
	40	Karjat R. C.	48,766	18th June "	6th July "	7	1·44	Do.	Do.	82	3	79
	41	Newása, R. C.	62,418	19th Mar. "	19th Oct. "	143	22·91	April	April	148	14	134
	42	Kopargaon R. C.	60,839	14th April "	25th Aug. "	269	44·21	May	June	125	44	81
	43	Sangamner R. C.	58,787	10th May "	23rd Dec. "	366	62·26	June	July	154	52	102
	44	Ráhuri R. C.	59,093	2nd " "	7th Oct. "	179	30·29	May	May	118	24	94
	45	Sheagaon R. C.	83,226	26th Mar. "	22nd April "	13	1·56	April	April	188	2	186
	46	Ahmednagar T. C.	32,841	18th May "	31st Oct. "	185	56·33	July	July	1	1	..
	47	Sangamner T. C.	9,978	13th " "	7th Nov. "	87	87·19	June	June	1	1	..
Poona.	48	Junnar R. C.	96,578	24th April "	22nd Oct. "	299	30·96	July	August	163	15	148
	49	Indápur R. C.	62,392	8th Mar. "	23rd " "	69	11·06	March	March	86	7	79
	50	Khed R. C.	139,152	1st April "	28th Sept. "	516	37·01	May	May	244	47	197
	51	Sirur R. C.	76,984	22nd Jan. "	10th Oct. "	165	21·43	July	July	77	15	62
	52	Purandhar R. C.	75,732	25th " "	16th Sept. "	346	45·69	June	Do.	92	39	53
	53	Bhimthari R. C.	115,297	3rd " "	27th Aug. "	570	49·44	January	January	329	52	77
	54	Haveli R. C.	155,082	21st " "	31st Oct. "	741	47·78	May	May	237	67	170
								July	July			
	55	Mávál R. C.	56,834	23rd Mar. "	22nd Aug. "	478	84·12	June	June	168	53	115
	56	Poona City T. C.	90,436	25th " "	31st Dec. "	409	45·23	July	July	1	1	..
	57	Junnar T. C.	10,298	22nd Aug. "	21st Sept. "	24	23·40	August	August	1	1	...
	58	Poona and Kirkee C. T.	28,450	29th " "	20th Dec. "	56	19·68	July	July	1	1	..
Sholápur.	59	Sholápur R. C.	127,184	13th Jan. "	1st Sept. "	172	13·52	May	June	149	20	129
	60	Bársi R. C.	112,293	25th " "	31st Dec. "	296	26·36	February	February	123	20	103
	61	Mádha R. C.	103,981	12th " "	13th July "	124	11·93	January	January	90	15	75
	62	Karmála R. C.	105,291	25th " "	19th Aug. "	64	6·08	June	June	123	10	113
	63	Pandharpur R. C.	63,039	17th Feb. "	30th Oct. "	111	17·61	May	May	84	12	72
	64	Sángola R. C.	62,960	1st Jan. "	24th Nov. "	286	45·42	June	June	77	25	52
	65	Málsiras R. C.	55,048	24th Feb. "	22nd Oct. "	141	25·61	May	Do.	69	20	49
	66	Sholápur T. C.	53,403	10th Jan. "	8th Sept. "	29	5·43	April	April	1	1	..
	67	Bársi T. C.	18,560	7th " "	30th June "	55	29·63	January	January	1	1	..
	68	Pandharpur T. C.	16,275	11th May "	30th July "	76	46·70	May	May	1	1	..
Satara.	69	Satara R. C.	90,629	3rd April "	8th Nov. "	400	44·13	May	May	147	25	122
								July	July			
	70	Jawli R. C.	59,836	4th May "	11th Dec. "	90	15·04	June	July	250	6	244
	71	Wai R. C.	75,033	28th Feb. "	6th Aug. "	412	54·91	May	May	126	26	100
	72	Karád R. C.	121,712	17th March "	16th Oct. "	1,204	98·92	April	April	103	75	28
	73	Wálwa R. C.	156,089	31st Jan. "	6th Aug. "	1,889	121·02	Do.	May	139	118	121
	74	Tásgaon R. C.	87,975	18th " "	30th July "	439	49·90	Do.	April	49	27	22
	75	Khánapur R. C.	76,783	25th Feb. "	8th Nov. "	299	38·85	Do.	Do.	91	18	73
	76	Khatav R. C.	81 950	12th March "	20th " "	339	41·37	Do.	Do.	87	21	66
	77	Mán R. C.	62,198	5th " "	31st Oct. "	199	31·99	March	March	77	12	65
	78	Malcolm Peth R. C.	4,006	15th June "	12th Aug. "	11	27·46	July	August	1	1	..
	79	Koregaon R. C.	82,344	12th April "	19th Nov. "	211	25·62	October	October	74	13	61
	80	Pátan R. C.	115,491	1st March "	2 4th Oct. "	920	79·66	June	June	205	69	136
	81	Satara T. C.	24,484	13th April "	23rd Dec. "	54	22·05	July	July	1	1	..
	82	Karád T. C.	11,410	13th March "	7th July "	90	78·88	June	June	1	1	..
	83	Wai T. C.	11,062	18th April "	23rd June "	145	131·08	May	May	1	1	..
Belgaum.	84	Belgaum R. C.	102,344	2nd Jan. "	31st Dec. "	891	87·07	Do.	Do.	201	96	105
	85	Sampgaon R. C.	131,504	3rd " "	30th " "	1,672	127·14	February	March	140	61	79
	86	Bidi R. C.	78,875	4th " "	31st Nov. "	777	97·85	Do.	Do.	240	35	205
	87	Chikodi R. C.	248,685	5th " "	31st " "	1,744	70·13	Do.	Do:	216	15	201
	88	Parasgad R. C.	120,691	2nd " "	29th Dec. "	909	75·31	January	January	133	57	76
								March	March			
	89	Gokák R. C.	97,085	1st " "	31st " "	1,053	108·46	Do.	Do.	118	20	98
	90	Athni R. C.	103,089	1st " "	31st Nov. "	826	80·12	January	January	82	57	25
	91	Belgaum T. C.	26,947	5th " "	31st Dec. "	197	73·11	December	December	1	1	..
	92	Gokák T. C.	12,612	8th " "	31st " "	94	74·53	April	May	1	1	..
	93	Athni T. C.	11,588	1st " "	30th June "	172	148·43	Do.	Do.	1	1	..
	94	Belgaum C. T.	5,330	2nd Feb. "	23rd Dec. "	27	50·66	May	June	1	1	..
Dharwar.	95	Dharwar R. C.	72 295	1st Jan. "	16th July "	556	76·91	March	April	170	26	144
	96	Mugud Petha R. C.	24,299	1st " "	30th June "	456	187·66	February	March	Not known.	22	..
	97	Hubli R. C.	62,277	1st " "	16th July "	323	51·04	January	January	91	16	75
	98	Nawalgund R. C.	86,840	1st " "	10th " "	415	47·79	May	May	93	27	66
	99	Nárgund R. C.	17,860	15th " "	10th " "	148	81·75	April	April			
	100	Gadag R. C.	66,792	6th " "	17th " "	598	88·33	February	March	Not known.	26	..

1	2	3	4	5	6	7	8	9		10	11	
District.	Number of Circles as shown in the Map.	Name of Circle.	Population of Circle.	Date of first case of Cholera in the circle during the year.	Date of last case of Cholera in the circle during the year.	Total deaths from Cholera in the Circle during the year.	Ratio per 10,000	Period of maximum intensity of the disease.		Number of villages in each of the rural circles.	Number of those	
								From	To		Affected by Cholera.	Not affected by Cholera.
Dharwar—*continued.*	101	Mundargi Petha R. C. ..	34,828	8th Jan. 1877	June 30th 1877.	290	83·27	February ..	February ..	Not known.	14	..
	102	Kalghatgi R. C.	52,729	2nd „ „	16th Sept. „	1,024	194·20	February .. / April ..	February .. / April ..	131	48	83
	103	Bankápur R. C.	83,175	1st „ „	30th June „	807	97·02	January ..	January ..	160	39	121
	104	Ron R. C.	68,321	20th „ „	17th Sept. „	624	91·33	Do. ..	Do. ..	59	29	30
	105	Karajgi R. C.	95,217	25th „ „	14th „ „	716	75·20	March ..	April ..	136	34	102
	106	Hángal R. C.	72,572	1st „ „	17th July „	661	91·08	February .. / April ..	February .. / April ..	174	31	143
	107	Ránibennur R. C. ..	74,978	15th „ „	10th „ „	352	46·95	February ..	March ..	128	17	111
	108	Kod R. C.	79,099	21st „ „	12th Sept. „	876	110·75	Do. ..	Do. ..	189	31	158
	109	Dharwar T. C.	27,136	1st „ „	4th Aug. „	283	104·29	January ..	February .	1	1	..
	110	Hubli T. C.	37,961	1st „ „	16th July „	241	63·49	Do. ..	Do. ..	1	1	..
	111	Gadag-Betigeri T. C. ..	19,035	2nd „ „	30th June „	340	178·62	March ..	March ..	1	1	..
	112	Ránibennur T. C... ..	11,623	27th „ „	Do. „	79	67·97	February ..	Do. ..	1	1	..
Kaládgi.	113	Indi R. C.	105,475	5th Feb. „	13th Oct. „	334	31·81	May	May	125	31	94
	114	Muddebihál R. C.	83,848	6th „ „	7th Sept. „	1,158	138·19	March ..	April ..	154	10	144
	115	Sindgi R. C.	99,798	25th Jan. „	30th „ „	992	99·49	Do. ..	Do. ..	150	66	84
	116	Bágewári R. C.	93,738	27th „ „	12th „ „	898	95·62	Do. ..	Do. ..	121	54	67
	117	Bijápur R. C.	86,311	1st „ „	31st Aug. „	705	81·98	January .. / April ..	January .. / April ..	100	36	64
	118	Bágalkot R. C.	103,593	22nd Jan. „	1st June „	738	71·16	February ..	March ..	175	65	110
	119	Bádámi R. C.	130,816	1st „ „	12th Sept. „	1,216	93·53	Do. ..	February ..	210	85	125
	120	Hungund R. C.	105,866	1st „ „	23rd „ „	988	94·10	May ..	May ..	169	76	93
	121	Kaládgi T. C.	6,592	14th „ „	31st „ „	101	153·26	Do. ..	Do. ..	1	1	..
	122	Kaládgi C. T.	Unknown.	...	...	1	..	January ..	January ..	1	1	..
Kanara.	123	Karwar R. C.	31,868	5th Jan. 1878	....	94	29·81	March ..	April ..	56	29	27
	124	Coompta R. C.	53,655	2nd Mar. „	7th Dec. „	708	131·95	July	August ..	164	60	104
	125	Ankola R. C.	25,455	2nd Jan. „	11th Nov. „	88	34·57	June	June			
	126	Honáwar R. C.	51,460	15th June „	15th Dec. „	355	68·99	July .. / October ..	August .. / October ..	136	38	98
	127	Bhatkal Petha R. C. ..	31,407	18th „ „	17th „ „	130	41·39	July .. / November ..	August .. / November ..	Unknown.	11	..
	128	Sirsi R. C.	58,099	2nd Jan. „	25th .. „	147	25·30	January ..	January ..	268	16	252
	129	Siddápur R. C.	34,183	3rd Mar. „	13th Nov. „	15	4·39	November ..	November ..	95	9	86
	130	Yellápur R. C.	18,113	3rd Jan. „	18th Sept. „	115	63·49	March ..	April ..	166	26	140
	131	Mundgod R. C.	16,185	4th „ „	28th .. „	356	220·64	„ ..	March ..	Unknown.	28	...
	132	Haliyál R. C.	29,214	3rd „ „	31st Dec. „	604	206·75	„ ..	April	Do.	35	..
	133	Supa Petha R. C.	24,572	14th April „	31st „ „	16	6·51	April ..	Do. ..	180	6	174
	134	Karwar T C.	13,263	24th Feb. „	21st Sept. „	69	52·02	August ..	August ..	1	1	..
	135	Coompta T. C.	10,932	1st Mar. „	16th Oct. „	107	97·88	June	July	1	1	..
Ratnágiri.	136	Málwan R. C.	108,277	23rd Feb. „	22nd Sept. „	170	15·70	Do.	Do.	76	Information not obtainable.	Information not obtainable.
	137	Deogad R. C.	118,921	17th Mar. „	31st Aug. „	366	30·78	Do.	June	124		
	138	Rájápur R. C.	166,498	3rd Feb. „	30th Nov. „	416	25·68	Do.	Do.	218		
	139	Ratnágiri R. C.	104,251	10th „ „	17th Dec. „	355	34·05	July .. / Sept. ..	July .. / September ..	139		
	140	Sangameshwar R. C. ..	96,865	23rd June „	30th „ „	248	25·60	July	July	147		
	141	Chipiun R. C.	163,930	2nd April „	8th Oct. „	666	40·63	June	Do.	237		
	142	Khed R. C.	89,647	27th May „	19th Dec. „	327	36·48	July	Do.	Unknown.		
	143	Dápoli R. C.	143.137	18th Feb. „	31st Oct. „	425	29·70	Do.	Do.	247		
	144	Vingorla T. C.	14,996	23rd „ „	31st „ „	29	19·34	Do.	Do.	1		
	145	Ratnágiri T. C.	10,614	10th „ „	27th June „	123	115·88	Do.	Do	1		
Colába.	146	Alibág R. C.	61,474	16th Feb. „	11th July „	62	10·10	May	May	208	7	201
	147	Pen R. C.	43,962	4th May „	21st Sept. „	71	16·18	July	July	150	2	148
	148	Nágothna R. C.	19,401	4th June „	5th „ „	234	120·61	June	June	77	14	63
	149	Roha R. C.	41,997	4th „ „	9th Aug. „	148	35·32	Do.	Do.	152	10	142
	150	Mángaon R. C.	72,733	13th „ „	7th „ „	108	14·85	July	July	231	6	225
	151	Mahád R. C.	98,734	1st Mar. „	23rd Sept. „	402	40·73	June	June	250	34	216
	152	Alibág T. C.	5,473	12th Feb. „	29th June „	8	14·62	February .. / June ..	February .. / June ..	1	1	..
	153	Mahád T. C.	6,631	12th May „	18th Dec. „	91	137·26	May	May	1	1	..
Bombay	154	Bombay City	644,405	9th Jan. „	31st „ „	2,510	38·98	Do.	June.	1	1	..
Thána.	155	Dáhánu R. C.	110,423	1st June „	23rd „ „	251	22·81	June .. / November ..	June .. / November ..	313	23	190
	156	Máhim R. C.	71,974	3rd May „	15th Nov. „	315	43·81	May	July	193	27	166
	157	Wada R. C... ..	32,420	22nd June „	31st Oct. „	177	54·63	June	June	167	16	151
	158	Shálmár R. C.	100,304	10th „ „	28th Sept. „	216	21·60	Do.	August ..	282	19	263
	159	Murbád R. C.	57,203	2nd July „	31st Oct. „	105	18·36	July	Do.	173	10	163
	160	Kalyán R. C.	59,752	30th April „	31st Aug. „	182	30·49	June	June ..	235	17	218
	161	Bhiwandi R. C.	74,263	16th May „	30th Sept. „	423	57·14	May	August ..	201	39	162
	162	Bassein R. C.	61,089	19th „ „	21st „ „	128	20·98	June	June	92	12	80
	163	Salsette R. C.	79,025	22nd April „	27th Dec. „	552	69·87	May .. / August ..	May .. / August ..	140	51	89
	164	Panwel R. C.	85,878	1st May „	21st „ „	267	31·12	May	May	277	25	252
	165	Karjat R. C.	77,150	9th April „	30th „ „	219	28·41	Do.	June	289	23	266
	166	Tanna T. C.	14,299	21st „ „	5th Aug. „	172	121·12	April ..	Do. ..	1	1	..
	167	Kalyán T. C.	12,804	7th May „	14th „ „	100	78·12	May	Do.	1	1	..
	168	Panwel T. C.	10,836	4th „ „	31st July „	230	212·88	Do.	May	1	1	..
Surat.	169	Olpád R. C.	66,256	27th July „	29th Nov. „	115	17·36	July	August	139	17	122
	170	Mándvi R. C.	48,367	6th Mar. „	8th Mar. „	1	0·21	March ..	March ..	169	1	168
	171	Chorási R. C.	48,435	31st July „	22nd Nov. „	118	24·36	September ..	October ..	77	12	65
	172	Bárdoli R. C.	77,560	22nd April „	22nd April „	1	0·13	April ..	April	138	1	137
	173	Jaláipur R. C.	70,112	9th Sept. „	4th Oct. „	21	2·99	September ..	September ..	95	1	94
	174	Bulsar R. C.	66,892	30th June „	30th Sept. „	161	24·07	June	June	95	10	85
	175	Párdi R. C.	51,749	27nd May „	31st Oct. .. „	209	40 31	Do.	July	81	6	75
	176	Surat T. C.	107,149	29th June „	31st Dec. „	144	13·44	October ..	November ..	1	1	..
	177	Bulsar T. C.	11,315	1st July „	10th Sept. „	208	183·82	August ..	August ..	1	1	..

1	2	3	4	5	6	7	8	9		10	11	
District.	Number of Circles as shown in the Map.	Name of Circle.	Population of Circle.	Date of first case of Cholera in the circle during the year.	Date of last case of Cholera in the circle during the year.	Total deaths from Cholera in the Circle during the year.	Ratio per 10,000	Period of maximum intensity of the disease.		Number of villages in each of the rural circles.	Number of those	
								From	To		Affected by Cholera.	Not affected by Cholera.
Broach.	178	Broach R. C.	73,359	6th Sept. 1877	25th Nov. 1877	100	13·63	September ..	September ..	105	Information not obtainable.	Information not obtainable.
	179	Wágra R. C.	38,779	20th July ,,	29th July ,,	12	3·09	July	July	69		
	180	A'mod R. C.	40,260	17th Oct. ,,	30th Nov. ,,	14	3·48	November ..	November ..	51		
	181	Ankleswar R. C.	41,067	23rd July ,,	30th Aug. ,,	13	3·16	July	July	57		
	182	Hánsot R. C.	26,656	26th ,, ,,	2nd Dec. ,,	43	16·13	Do.	August ..	48		
	183	Broach T. C.	36,992	12th ,, ,,	16th Nov. ,,	120	32·49	October ..	July	1		
Kaira.	184	Mehmadabad R. C. ..	73,073	26th Oct. ,,	30th ,, ,,	35	4·71	December ..	October ..	60	5	55
	185	Nariád R. C.	126,932	28th ,, ,,	31st Dec. ,,	33	2·59	November ..	December ..	98	6	92
	186	Borsad R. C.	132,514	22nd Nov. ,,	30th Nov. ,,	4	0·30	Do. ..	November ..	90	1	89
	187	A'nand R. C.	149,952	5th ,, ,,	28th Dec. ,,	80	5·33	Do. ..	Do. ..	74	6	68
	188	Thásra R. C.	85,601	24th Oct. ,,	9th ,, ,,	40	4·67	Do. ..	Do. ..	100	5	95
	189	Kapadwanj R. C. ..	72,760	25th Nov. ,,	9th ,, ,,	9	1·24	Do. ..	December ..	86	4	82
	190	Mátar R. C.	78,673	28th ,, ,,	30th Nov. ,,	2	0·25	Do. ..	November ..	82	1	81
	191	Nariád T. C.	24,851	21st ,, ,,	4th Dec. ,,	2	0·41	Do. ..	December ..	1	1	..
Panch Mahals.	192	Godhra R. C.	63,373	30th Mar. ,,	10th ,, ,,	20	3·16	Do. ..	November ..	228	7	221
	193	Dohad R. C.	52,041	13th Nov. ,,	31st ,, ,,	62	11·91	Do. ..	Do. ..	131	9	122
	194	Káiol R. C.	40,595	15th ,, ,,	30th ,, ,,	5	1·23	Do. ..	Do. ..	68	3	65
	195	Jhálod R. C.	36,785	25th June ,,	29th ,, ,,	16	4·35	December ..	December ..	100	4	96
	196	Hálol R. C.	25,926	31st Dec. ,,	31st ,, ,,	2	0·77	Do. ..	Do. ..	164	1	..
	197	Godhra T. C.	10,641	10th Nov. ,,	2nd ,, ,,	58	54·51	November ..	November ..	1	1	..
	198	Dohad T. C.	11,472	1st Dec. ,,	13th ,, ,,	13	11·33	December ..	December ..	1	1	..
Ahmedabad.	199	Daskrohi R. C.	130,610	3rd Nov. ,,	6th ,, ,,	83	6·35	November ..	November ..	145	21	124
	200	Gogo R. C.	24,258	30th Dec. ,,	31st ,, ,,	1	0·41	December ..	December ..	64	1	63
	201	Parántij R. C.	106,934	21st Nov. ,,	27th ,, ,,	72	6·82	November ..	Do. ..	115	7	108
	202	Dholka R. C.	92,521	3rd ,, ,,	3rd Nov. ,,	1	0·11	Do. ..	November ..	119	2	117
	203	Ahmedabad T. C. ..	116,873	29th Oct. ,,	21st Dec. ,,	103	8·81	Do. ..	Do. ..	1	1	..
	204	Gogo T. C.	9,571	11th Nov. ,,	11th Nov. ,,	1	1·04	Do. ..	Do. ..	1	1	..
	205	Dholka T. C.	20,854	27th Oct. ,,	23rd Dec. ,,	16	7·67	Do. ..	December ..	1	1	..
	206	Ahmedabad C. T.	1,883	3rd Nov. ,,	21st Nov. ,,	8	42·49	Do. ..	November ..	1	1	..

No. 3349.

GENERAL DEPARTMENT.

Bombay Castle, 5th November 1878.

Letter from the Sanitary Commissioner, No. 2417, dated 12th October 1878—Submitting, with his remarks and explanations, the Annual Report of the Sanitary Department for the calendar year 1877.

RESOLUTION.—The report of the Sanitary Commissioner in 1877 is the joint production of Mr. Lumsdaine and Mr. Hewlett who acted for him till his return from furlough in May 1878. The larger and more important part is the work of Mr. Hewlett, as Mr. Lumsdaine's share is confined to having passed through the press Sections I—IV and VII. It is divided this year, as last, into ten sections or chapters, which will be commented on by Government in the following paragraphs. It will not be necessary to notice at great length Sections I—IV, as these will all be embodied in the report of the Sanitary Commissioner with the Government of India, and will, for the same reason, be omitted from future reports by the Bombay Sanitary Commissioner.

2. Section I. contains a brief and clear history of the meteorology of the year, compiled by Mr. F. Chambers, the Meteorological Reporter, and shows that from January to May and in November and December, the rainfall throughout the Presidency was, as usual, insignificant; in Sind, Gujarát, the Konkan and along the Sahyádri range the rainfall throughout the monsoon months, June to September, was deficient, particularly in July, which is usually the wettest month. In Gujarát and Sind there was practically no rain throughout the whole of August. In the Deccan an excess of rain fell in June, but the fall in July and August was generally below the average, especially in July. In September and October, however, more than twice the usual quantity fell in the Southern collectorates, and about an average supply in the Northern districts, while October was also exceptionally wet in the Konkan, Gujarát, and the Sahyádri range. Appended to this section are certain tables showing various interesting meteorological facts. There is apparently an error in the second table on page 12, which gives a rainfall in 1873 of 7 inches 15 cents only in Násik, while the neighbouring districts of Khandesh and Ahmednagar show returns of 30 and 34·31 inches respectively.

3. Section II. treats of the European army, the total strength of which on 1st January 1877 was 10,425, and on 1st January 1878 was 11,252, the average annual strength throughout the year having been 10,061. The year 1877 was unhealthier than any of the previous five years, the ratio of constantly sick in hospital being 583 per 1,000, but it is noticeable that the ratio of deaths, of which there were 117, was only 11·63 per 1,000. Malarial fevers and venereal diseases were, as last year, the chief causes of admissions into hospital, and out of the total admissions of 13,696 from all causes, these two gave 6,522. There were 15 cases of cholera, of which 10 were fatal as against 5 in 1876, and 10 men—6 more than the average and the largest number ever recorded—committed suicide. The loss of strength from invaliding was 48·30 per 1,000, the heaviest recorded in the past six years. The temperance movement appears to be gaining ground; as of the whole army—mean strength 10,061—there were 1,196 men total abstainers. The highest percentage, 29·69 per cent. of strength, was found in the 2/7th Regiment, which, however, also gives a high percentage, 67·55, of cases of drunkenness. Curiously enough too, the 83rd Regiment, which has a percentage of total abstainers of 24·60 on total strength, gives a percentage of cases of drunkenness of 78·72, which is only surpassed by the 16/8 R. A. with a percentage on strength of 110·26, and the C/2 R. A. with 80·86 per cent. In the whole European army there were 5,122 cases of drunkenness, equal to 46·91 per cent. of strength reported during the year.

4. The ratio of admissions into hospital was highest in the Bombay district, where, out of an average annual strength of 519 men, there were 1,269 admissions, equal to a rate of 2445·1 per 1,000: the lowest rate was in Aden,

where 839 men per 1,000 of strength were admitted into hospital. The Bombay Division shows also the highest daily sick-rate, 85 per 1,000 as against 69 per 1,000 in 1876, and Aden gives the lowest, 35·21 per 1,000. The highest death-rate, 17·21 per 1,000, was in the Northern Division, and the lowest in Sind, 9·13. The healthiest stations appear to have been Aden and Deesa with admission-rates of 839 and 1044·6 per 1,000, and death-rates of 9·89 and 10·40 per 1,000 respectively. Satara which last year was the healthiest station, gave in 1877 an admission-rate of 1605·1 per 1,000 and a death-rate of 6·37. Malarial fevers again showed a decrease on the returns for the previous year, the rates of admission being 452·2 per 1,000 as against 480·4, Bombay and Hyderabad being again the two stations with the highest ratios. The admissions from venereal diseases reached the highest figures recorded in the six years from 1871, being 196 per 1,000 of strength—a state of things which is much to be deplored, and a remedy for which is engaging the attention of Government. The extracts from the annual cantonment reports by medical officers, pages 34—70, give much useful information.

5. In considering the sanitary history of the Native army as given in Section III., it is somewhat curious that a result opposite to that obtaining in the European army is found, as the ratios of admissions and daily sick are less than in 1876, while the death-rate, 13·7 per 1,000, is the highest of any of the years ending 1877. At the beginning of the year, the total strength was 25,028, at the close 24,915, the average annual mean strength being 22,561. The ratio of admissions into hospital was 1113·9 per 1,000, and of average daily sick 34·9. Malarial fevers 485·6 and wounds and accidents 114·5 per 1,000 of strength were the two chief causes of admissions, and the average daily number of sick from all causes was 788, a ratio of 34·9 per 1,000. There were 310 deaths from all causes, 45 being due to respiratory diseases, 39 to cholera, and 37 to malarial fevers. Of the total number of deaths, 95 occurred out of hospital. Government regret to observe the increase in the ratio of admissions from syphilitic diseases, 25·8 per 1,000, or 7·9 beyond the mean of the preceding five years. The extracts from the annual cantonment reports by medical officers are carefully drawn up, and show that the general conservancy is fairly looked after.

6. In Section IV. are given very full details regarding jails, but this subject has so recently been discussed at some length in Government Resolution No. 5878, dated 9th October 1878, Judicial Department, upon the annual report of the Inspector General of Prisons, that it is needless here to do more than glance at the main points. The average annual number of prisoners in 1877 being 11,316, the ratio of admissions into hospital was 946, of daily sick 28 per 1,000, and of deaths 57·7 per 1,000, a rate of mortality exceeding the mean of the five previous years by 32·1. The abnormal increase is due to the famine which drove more persons into crime, and their condition being bad on admission, it was to be expected that the sickness and mortality would be exceptionally heavy. This view is borne out by the facts that in the Deccan and Southern Marátha Country jails and prison gangs, the numbers of prisoners, the admissions into hospital, the numbers of daily sick and of deaths were far beyond those of ordinary years, while in non-famine districts, the numbers and ratios remained much the same as usual, though even in them there was some increase. Dysentery and diarrhœa were particularly fatal, their proportions being in 1877 four times larger than the mean of the preceding five years. Cholera broke out in 11 jails, and out of 73 attacks, 37 were fatal. All the jails in the Deccan and Southern Marátha Country were much overcrowded as well as the Bombay House of Correction and several of the Gujarát prisons. The greatest sickness and the largest mortality were found in the Gokák extra-mural gang, the Dharwar Jail and the Nira gang, the ratios of admission into hospital being 2012·0, 1193·7, and 1993·2 per 1,000, of daily average sick 53·6, 25·1 and 25·7 per 1,000, and of mortality 222·89, 172·66, and 135·14 per 1,000 respectively.

7. The Sanitary Commissioner has in the opening paragraphs of Section V., which contains the vital statistics of the general population, briefly mentioned certain facts which must be kept in mind in considering those statistics, viz., that

the year was one of famine during which the population of the affected districts necessarily suffered privation and distress; that owing to careful supervision by local officials, the registers of births and deaths have never before been so carefully kept in those districts; that in addition to deaths from diseases mainly arising from insufficient nourishment, epidemics of cholera, small-pox, and malarial fevers prevailed; that numbers of people from the Moglái and Native States came into British territory whose deaths helped to swell the returns in British districts; that the out-caste Mángs and Mahárs refused to leave their villages and go on famine relief-works or to relief-houses, while finally many deaths of children and of aged and infirm people occurred through neglect on the part of their relatives. The total number of births registered was 311,661. The three districts showing the highest ratio per 1,000 were Kanara 29·44, the same as in 1876, Násik 25·71 as against 27·78, and Kaira 25·53 as against 23·20 in the previous year. The rate in Bombay city was 21·29 as against 20·90. In all the famine districts, except Khandesh, a considerable decrease is noticeable. The birth-rate per 1,000 for the whole presidency was 19·26 as compared with 21·35 in 1876. Registration in Sind was as defective as usual. A comparison of the figures in the table of births at page 137 confirms the view expressed by Government last year, when considering Mr. Hewlett's report, that registration in Bombay city is by no means so perfect as to induce them to adopt the changes then advocated by him for the improvement of registration in the mofussil, as in 1877, Bombay occupies the thirteenth place in the list showing the registration of births. The total number of deaths recorded was 627,708, an increase of 260,048 over the figures of 1876. The three districts with the greatest mortality were Kaládgi 83,053, Dharwar 83,857, and Belgaum 70,244, the ratios per 1,000 of population being 101·77, 84·87 and 74·83 respectively. In Bombay city the deaths were 33,223, a ratio of 51·55 per 1,000. Government concur in the opinion expressed that the death-rate in Khandesh, Násik, Ahmednagar, and Poona was closely approximate to the true average, but they think that the average was somewhat exceeded in Sholápur with a death-rate of 48·81 per 1,000, and there can be no doubt that in Kaládgi, Belgaum, Dharwar, and Satara it was largely in excess of the average. The causes of the mortality will be noticed in the next paragraph. February and January seem to have been the healthiest months of the year on the whole, and August and September the most unhealthy. The mortality in the city of Bombay was 33,223, equal to a rate of 51·55 per 1,000 of population, and is the highest mortality ever recorded. The main cause thereof was clearly the immigration of distressed people from the famine districts. It would, however, have been more satisfactory if the "duration of residence in Bombay" of the deceased persons had been tabulated and published. It is to be regretted that the classification of deaths according to ages in the form prescribed by the Government of India has not been given, and that it has been found requisite to continue the old form, as all the district officers have not been able to supply the information. Government hope that this omission will be rectified in future reports.

8. In Form No. V. are entered the deaths by classes or castes, and from this it is gathered that out of the 627,708 deaths which occurred, 71,586 were of Musalmans, 543,669 of Hindus, including Jains and all castes professing Hinduism, 3,130 of Christians, and 9,323 of 'Other Classes' in which are included Pársis, Chinese, and Jews. The ratio of deaths per 1,000, respectively, were Musalmans 25·12, Hindus 41·59, Christians 29·50, and Other Classes 55·00. Mr. Hewlett again urges strongly that the Hindus should be further sub-divided than they are at present, and that the lower castes, such as Mahárs, Dhers, Parwáris, and so forth, should be shown distinct from the higher castes, on the ground of the importance of showing the deaths among the former. Government are unable to agree in the view taken by Mr. Hewlett, as, strictly speaking, the classes which he mentions are out-castes, and the probability is, there would be considerable difficulty and confusion in distinguishing them from low castes which are separated from them by conventional lines only. To do so would needlessly multiply labour and make the forms more complex than they now are without any adequate advantage to compensate for this. In pages 150—161, Mr. Hewlett goes very fully and carefully into the subject of the deaths in the famine districts,

and records as his conclusion that " taking the nine districts together, the total deaths from all causes amounted to 5·51 per cent. of population, and the deaths from famine in these collectorates certainly did not exceed, but must have been somewhat perhaps considerably under 2·73 per cent. Taking the districts separately, of course, this mortality was much higher in some than in others. But in Kaládgi, the worst district, we can confidently state that it did not exceed 7·47 per cent. of population; in Dharwar it was not above 4·93 per cent.; in Belgaum not beyond 4·26 per cent. I have stated that it was not greater in these districts than these figures show, but how much less it was I cannot with certainty say." Government have recently had this matter before them, and the conclusion arrived at, after careful consideration of all the evidence available, was that Mr. Hewlett's estimate of 2·73 per cent. was considerably over the mark, and that the mortality directly or indirectly attributable to the famine must be under 2 per cent., and did not exceed 1½ per cent. of the population for the year 1877.

9. Turning next to the consideration of Section VI. which gives the history of the chief diseases, it is found that the lamentable epidemic of cholera which began in 1875 and continued throughout 1876 was in even greater force during 1877. Deaths from this disease were 47,555 in 1875, 32,117 in 1876, and 57,252 in 1877, the ratio of deaths to population in the last-named year being 3·54. It existed in every district of the Presidency proper, Sind collectorates alone escaping, and, as in 1876, it was most fatal in the Southern Marátha Country. The four districts which suffered most were Dharwar 8,779 deaths, Belgaum 8,357, Kaládgi 7,124, and Satara 6,702, and the four towns, exclusive of Bombay, where it was severest, were Panwel (in Tanna Collectorate) 230 deaths or 21·23 per 1,000 of population, Bulsar (in Surat) 208 deaths or 18·38 per 1,000, Gadag-Betigiri (in Dharwar) 340 deaths or 17·86 per 1,000, and Athni (Belgaum) 172 deaths or 14·84 per 1,000. In Bombay city there were 2,510 deaths, a ratio of 3·92 per 1,000. The highest mortality was in June, 8,320 deaths, and May 8,299, and the lowest in December when 797 deaths from this cause were registered. It may be said generally that the disease increased in severity as the hot weather advanced, and that there was no really perceptible decline till after the heavy fall of rain in the end of June, from which time it gradually declined, though it never died out altogether.

Small-pox was registered as causing 27,369 deaths, the highest number yet recorded, and exceeding that of 1876 by 15,552, and the quinquennial average by 16,072. It was most prevalent in the Khandesh and Násik districts, but most other collectorates suffered also to some extent. It was at its height in March when 5,949 persons died, and thenceforward it declined steadily. The figures given in the table on page 174 show that vaccination has not been sufficiently employed as a protection against the disease, and this point will be again referred to later on.

Fever caused 336,865 deaths, an unprecedented number, and 116,032 more than in the previous year. The death-rate from this cause was 20·79 per 1,000 of population, and 53·67 per cent. of total deaths. The highest rate per 1,000 was in Kaládgi 50·55, Dharwar 40·40, Satara 29·74, and Belgaum 26·91. The fact that the death-rate from fever was highest in the districts where famine was severest is no proof that the latter calamity had any connection with the former, which may more safely be attributed to the excessive fall of rain in the Southern Marátha Country districts during the months of October and November inducing extraordinary activity of malarious poison. In Kaládgi there were 41,248 deaths from fever, in Dharwar 39,915, in Satara 31,555, and in Belgaum 25,267. It is unncessary here to enter into any discussion on the alleged 'relapsing fever' in Bombay city.

From bowel complaints 60,257 persons died, being 26,574 in excess of the number of deaths from this cause in 1876. The reason of this great increase was evidently improper food and long continued privation, the largest number of deaths being found in the districts where famine was worst. These diseases were most fatal in July, August, September and October, in which months 6,799, 8,666, 9,176 and 6,825 deaths occurred.

Accidents and violence accounted for 7,539 deaths as against 5,928 in 1876, of which 1,155 were suicidal, 1,261 were from snake-bite or injuries by wild beasts, and 5,123 by accidents or wounds. The highest mortality from snake-bite was found as usual in Hyderabad, 206 deaths, Tanna 129, and Ratnágiri 102. The large increase from 1,892 to 2,588 deaths by accidental drowning, of which 1,203 were in wells, would seem to show that these are not sufficiently protected, and the orders already existing about the proper fencing of wells must be strictly enforced and carefully attended to by all district officials.

Government observe that in column 4 of Forms VII., VIII., IX. and X., the information required by the Government of India is not supplied for the North and South Deccan and the Sind Divisions, on the ground that it is "not obtainable," although it is given for those of the Konkan and Gujarát. Mr. Lumsdaine in a separate communication attributes this to the fact that the Collectors in certain districts had themselves compiled this information, and, therefore, that those who did not do so ought to have prepared it. Government cannot concur in this view. The various Mámlatdárs are directed by the Collectors to send their returns to the Deputy Sanitary Commissioners, and it is clearly the duty of the latter officers to compile the figures. It is hoped they will find leisure next year to do it in time for the general report.

10. In Section VII. is detailed the work of the Vaccination Department, which suffered both from unavoidable changes in the personnel of the controlling staff, and from the famine affecting the general population. The total number of persons vaccinated in 1877-78 was 750,948 as compared with 815,177 in 1876-77, a decrease of 64,229. Of the operations, 670,055 were primary, and 80,893 re-vaccinations, exclusive of 522 persons who were twice operated on. The decrease was general in the North and South Deccan Registration Districts and the Native States under them, in the Tanna and Kolába districts of the Konkan District, and in the Presidency Circle, the cause assigned being in the first-named, the famine, in the second, the sickness of the vaccinators, and in the last, the general ignorance at first about vaccination being compulsory in Bombay. Of primary operations, 630,590 or a percentage of 94·11 were successful, 1·24 per cent. less than in 1876-77, while of re-vaccinations 60,847 or a percentage of 75·22 were successful. The Eastern Gujarát District with a percentage of 97·49 of successful operations occupies the highest place, and is closely followed by Sind with a percentage of 96·38. The percentage of males to females vaccinated was 53·25 to 46·75, the actual numbers being 399,205 males to 350,430 females. Of the 668,742 persons primarily vaccinated, 3,238 were Christians, 515,750 Hindus, 104,672 Musalmans, 1,616 Párs is, and 43,466 Other Castes. The figures for the Pársis are very low. The quality of the lymph received from England was generally fair, and vaccination direct from the heifer was carried on in Bombay, Poona, and Surat, as a rule, with success.

11. The total expenditure in 1877-78 was Rs. 2,36,369 as compared with Rs. 2,05,184 in 1876-77, the greatest increase being under 'Provincial Services' on account of the pay of the administrative staff being paid for the whole of the year instead of for only a portion as in 1876-77. The average cost of each successful operation, exclusive of the pay of the higher staff, was 4 annas 7 pies as against 3 annas 8 pies in 1876-77, and, including the above charges, the average cost was 5 annas 8 pies as against 4 annas 6 pies, so that one result of the year's operations was that less work was done at a greater cost. The travelling and inspections of the superior officers of the department were fairly done on the whole, and as a rule there was not anything to complain of in the work done by the subordinate officers. At the same time, the perusal of this report and consideration of the figures therein confirm the opinion expressed by Government when reviewing the Annual Administration Reports for 1877-78 of the Collectors of Khandesh, Násik, and Ahmednagar. Small-pox was most virulent in those districts, and the Governor in Council must repeat that the only real test of success in vaccination being the cessation or diminution of small-pox, the prevalence of the disease in an epidemic form is a sure sign that the vaccinators have neglected their work. The closest personal attention of all the Deputy Sanitary Commissioners must be given to ensure the work being thoroughly and efficiently done.

12. Section VIII. gives some account of sanitary works in cantonments, which will be more fully commented on by Government in the Military Department, but it may be mentioned here that in Poona Rs. 19,235 were spent on various drainage schemes and works of sanitation, at Ahmedabad Rs. 3,82,307 were expended for barracks, an expense magazine, latrines, and other works, Rs. 10,091 at Deesa on miscellaneous works for the Royal Artillery and the European and Native Infantry stationed there, Rs. 35,832 at Jacobabad on pendals, latrines, and the hospital, and Rs. 39,645 at Aden, mainly for the improvement of the water-supply.

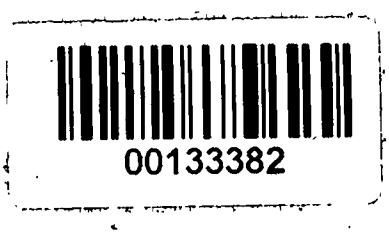
13. Section IX. contains lists of the sanitary works, civil, done by the various District Local Funds and Municipal Committees. No statement of the cost of any of these is furnished, nor is any reason given for the omission.

14. Section X. is occupied with a brief account of the personal proceedings of Mr. Hewlett while Acting as Sanitary Commissioner, from which it appears that, as has already been separately noticed by Government, he was indefatigable in travelling through the famine districts where his advice was of much assistance to Government and the local officers. Most, if not all, of the points touched upon in this chapter have been separately considered and disposed of by Government, and it is accordingly not requisite to refer further to them in this place. His Excellency the Governor in Council has lastly to thank Mr. Hewlett for this valuable report, and to express the sincere regret of Government that the severe exertions and great exposure to which he was subjected have temporarily so impaired his health as to compel him to proceed for change to Europe.

E. W. RAVENSCROFT,
Chief Secretary to Government.

To

The Sanitary Commissioner,
The Meteorological Reporter for Bombay, &c.,
The Surgeon General, Indian Medical Department,
The Public Works Department of the Secretariat,
The Military Department of the Secretariat,
The Judicial Department of the Secretariat,
The Revenue Department of the Secretariat,
The Commissioner in Sind,
The Commissioner, N.D.,
The Commissioner, C.D.,
The Commissioner, S.D.,
All Collectors, including the Collectors and Superintendents in Sind, and the Extra Assistant Collector in charge Panch Máhál,
The Accountant General.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OF THE

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1877,

WITH

APPENDICES

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